

**UNIVERSITY OF EDUCATION WINNEBA**

**UTILISATION OF INSTRUCTIONAL MEDIA/TECHNOLOGIES IN  
TEACHING AND LEARNING: CHALLENGES FACING  
TEACHERS AND STUDENTS IN SELECTED BASIC SCHOOLS IN  
OFFINSO MUNICIPALITY**



**EMMANUEL ATUAHENE**

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**EMMANUEL ATUAHENE**



**A thesis in the Department of Educational Leadership,  
Faculty of Education and Communication Sciences, submitted to the School of  
Graduate Studies in partial fulfilment of the requirement for the award of the degree  
of Master of Philosophy (Educational Leadership) in the University of Education  
Winneba.**

**NOVEMBER, 2021**

## DECLARATION

### Student's Declaration

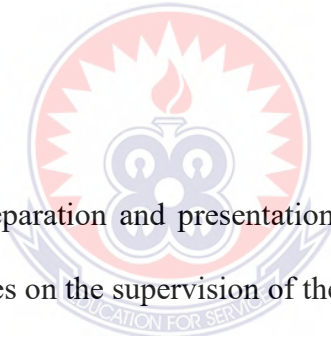
I, Emmanuel Atuahene declare that this thesis, with exception of quotation and references contained in published works which have all been identified and duly acknowledged, is entirely my original work, and it has not been submitted, either in part or whole, for another degree elsewhere.

**Signature**.....

**Date**.....

### Supervisor's Declaration

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



**Name of Supervisor:** DR. SAMUEL ADU GYAMFI

**Signature**.....

**Date**.....

## DEDICATION

To my lovely Wife Mrs. Martha Kankam and Children Lordina Atuahene, Manuel Atuahene-Koduah, Imanol Atuahene-Sarfo



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## ABSTRACT

The purpose of the study was to explore the utilisation and challenges faced by teachers and students in the use of instructional media/technology in the teaching and learning process, what resources are available, whether or not the resources were adequate, their accessibility, interactivity, appropriateness and usage, the novelty of the instructional technologies and trendiness on use. The embedded exploratory sequential mixed method was adopted with sample size of 252 students, 92 teachers and 8 headteachers chosen using the Yamane's formula from eight basic schools within the Offinso Municipality. Data were collected using questionnaires, interviews and observation schedules. The obtained data were analyzed systematically using descriptive statistics and presented with the help of frequency tables, graphs and percentages with the Statistical Package for Social Sciences (SPSS). The study revealed that most of the instructional media/technologies were available but inadequate in terms of quantity. The use of instructional media/technologies was influenced by their accessibility, availability and appropriateness, how they enhance learning, knowledge and skills on usage, curriculum requirement and administration support. It was concluded that print resources were the most commonly used available instructional media/technologies. Both teachers and students faced several challenges in the utilisation of media/technology such as inadequate knowledge, skills, funds and resources, lack of accessibility, administrative support, large class sizes which need resolutions. The study however recommended that teachers should try as much as possible to integrate instructional media/technologies in the teaching and learning processes to enhance lessons. Familiarisation and sensitisation workshops, seminars and in-service training on regular basis should be organised by the education directorate and other stakeholders.

## CHAPTER ONE

### INTRODUCTION

#### 1.1 Background to the study

Education across the globe has been acknowledged as an important way of promoting economic and social development at national, societal, and individual levels. According to Omariba, Ayot and Ondigi (2015), the development of the worldwide economy and the information based society have pressurised education frameworks throughout the globe to utilise technology to teach students the knowledge and skills they need. Learning institutions are under expanding-pressure to utilise instructional technologies in imparting knowledge and skills needed in the 21<sup>st</sup> (twenty-first) century. The main challenges facing Ghana's educational system is how to transform the curriculum as well as the teaching and learning process to provide learners with the requisite skills to function effectively in a continuously changing environment.

Teachers face several difficulties in terms of who is to provide technical support, that they will not be discouraged by equipment failure or software behaviour that they don't comprehend. The Ghana Government through the T-TEL program has transformed teacher education to work on the quality and raise the profile of all new teachers to incorporate materials important to help teachers in conveying a complete course for training student teachers. This will completely help student teachers to meet the necessities of the National Teachers Standards and to be teachers in all the basic levels nationwide (Ministry of Education, 2018)

The goal of ICT as a course per the new basic education curriculum in Ghana is to introduce students to computer-based information systems such as their applications, suggestions and issues encompassing and surrounding their use. It provides students with background information on the utilisation of Personal Computers (PCs). It also

serves to meet the general technology/computer literacy requirement and prepares them to use ICTs in their teaching and learning to motivate students to develop the requisite ICT and 21st Century skills and understanding (Ministry of Education, 2018).

Integrating technologies or media into the teaching and learning processes will help improve teachers' practical skills in various ways and also adopts methodologies that incorporate authentic assessment and innovative teaching methods to prepare both students and teachers to operate in diverse learners and learning environments.

There is a high mobile communication device ownership in Ghanaian society. Most students and teachers have an interest and experience in using these devices for social and personal interactions. However, the integration of technologies into learning and teaching is low in Ghanaian schools. Ghanaian schools can be categorised as low technology-rich learning environments, mostly in public schools. Attainment of quality education is virtually a global concern among all schools which can be accomplished by utilising efficient and effective teaching needs through the powerful usage and application of instructional technologies. Properly designed learning materials enlivened by instructional technology and conveyed by technology enhance the teaching environment wherein contact hours are restricted (Walters, Walters, Green & Lin, 2016).

Instructional technologies have demonstrated to enjoy different advantages if only they are utilised well as they assume an indispensable part in the teaching/learning process. Instructional technology involves the use of practical techniques in lesson delivery with the core aim of achieving effective and efficient learning with or without using media (Gagne, 2013). Students are equipped to learn more effectively whenever a well-selected instructional media or technologies are used to promote the sharing of knowledge, ideas, feelings, and thoughts as compared to a learning situation where information is verbally provided.



Instructional media/technologies attract attention which is key in learning. Hence, it is appropriate to make use of attention-catching devices to help gain students attention during lesson delivery and enrich learning settings through presentations from concrete to abstract, simple to complex, known to unknown. To say the least, instructional technologies have turn into an essential part of the teaching/learning process due to rapid technological changes (Lewin, 2016). The utilisation of instructional media/technologies can help reduce the length of time required for instruction, leaving more time for the practice of skills since teachers nowadays find themselves with a lot of content to cover within a very short time. Most instructional technologies are effective in the delivery of content and also help sustain and encourage learners to learn at their own pace and time. Muliani (2018) acknowledges that there is substantial empirical evidence indicating that teachers frequently capitalise on the novelty and attraction of the media used to achieve the essential instructional goal of capturing and holding students' attention. Mulani adds that the importance of instructional technology/media in the teaching-learning process cannot be exhausted. Teachers' consciousness of these advantages can propel them to see the value in embracing the gains and utilise the advancements in their teaching. It can make one of the elements of fostering an uplifting outlook by the teacher in regards to the utilisation of instructional media/technologies.

In Ghana, like most other developing countries, instructional media/technologies usage is still limited. The pertinent question one would ask at this point is whether or not the schools in Ghana are benefiting from these emerging technologies. If not, then why are they not benefiting from these emerging technologies? This study is, therefore, set to investigate the challenges facing teachers and students in using instructional technologies in selected basic schools in the Offinso South Municipality in the Ashanti Region of Ghana.

There is the need to utilise instructional technology to promote learner-centred education by integrating instructional media/technologies into the teaching and learning process (Muriithi, Horner & Pemberton, 2016). Despite their major contributions to learning, their availability and use have been wanting. The question is: are those instructional media/technologies being used to enhance teaching and learning processes in our schools?

The present ICT curriculum in Ghana merely deals with teaching about computers and not how computers can be used for teaching/learning in our schools. Therefore, a wide range of instructional media/technology should be selected and incorporated into the teaching/learning process which is not the case in our Ghanaian schools. Therefore, the study sought to investigate the utilisation and challenges of instructional media/technologies into the teaching/learning processes.

It also seeks to examine why these instructional media/technology are not effectively used and the challenges both teachers and students face in the use of Instructional Media/Technology in the teaching and learning process as other researchers have also proven that the use of instructional media/technology tend to act as permanent stimuli to the learner for they can present a complete overview of what is presented (Moore et al.2003, and Omariba et al, 2015).

Inadequate exposure puts learners in a difficult situation in conveniently accessing information and in the anticipated future well going after the scarce world occupation markets. Hence, exposing learners to instructional technology will enable them to become more effective individuals and to function as capable, coping members of society to work on their confidence.

## 1.2 Statement of the problem

In the 20th and the beginning of the twenty-first hundreds of years, more significant changes have as of now happened, or will happen than have occurred in any comparative period in our set of experiences. Revolutionary changes call for the utilisation of instructional media/technology in the teaching and learning processes. Instructional media/technology captures the human mind when used effectively and efficiently. It help teachers to be more organized in selecting appropriate objective and method for presenting content to stimulate learners to facilitate understanding of the concept (Omariba et al, 2015).

We must move towards the goal of transforming the traditional paradigm of teaching and learning by using different types of instructional media/technology in the teaching and learning process in our Ghanaian Schools.

The use of instructional media/technology has the potential of making teaching and learning more interactive, particularly, if the learner can manipulate, observe or hear from a device. Instructional media/technology can boost learners' interest and make them eager to gain more knowledge, skills, and attitudes. They can therefore facilitate understanding than when using the lecture method during teaching (Agyei & Voogt, 2011). Despite the major contribution of instructional media/technology to teaching and learning, their availability and use has been wanting. Are they used to enhance teaching and learning in our basic schools? The present ICT curriculum in Ghana merely deals with teaching about computers and not how computers can be used for teaching/learning in our schools. Hence, a wide range of instructional media/technology should be selected and integrated into the teaching/learning processes which are not the case in our Ghanaian schools. The study therefore sought to investigate why instructional

media/technology are not utilised and the challenges faced by teachers and students in the utilization of instructional media/technologies in the teaching/learning processes.

Moreover, instructional media/technology is not effectively used in our classrooms since both teachers and students face a lot of challenges. Whenever instructional media/technology is weak, improperly structured or sequenced, their use may result in limited learning (Smaldino, Lowther & Russel 2012). These challenges greatly affect teaching and learning, learner's performance, and the quality of students produced in this digital age. Schools in the Offinso Municipality are not exception since students are not exposed to the use of technology due to teacher's inability to adopt various techniques to utilise instructional media/technology in the teaching and learning processes (Quansah, Sakyi-Hagan & Essiam, 2019). This however puts students at disadvantage in competing for the scarce global market and accessing information. It is in view of this that the researcher deemed it necessary to investigate into the utilisation of instructional media/technology and the challenges faced by both teachers and students in the teaching and learning processes.

### **1.3 Purpose of the study**

The purpose of the study was to find out the utilisation and challenges of using instructional technologies: what resources are available, whether or not the resources were adequate, their accessibility, interactivity, and use of instructional technologies between the teachers and students, school organization policy on the use of instructional technologies, the novelty of the instructional technologies and trendiness on use.

#### **1.4 Objectives of the Study**

The overall objective of the study was to establish the utilisation and challenges faced by teachers and students in the use of instructional technology in the teaching and learning process. To achieve the purpose, the researcher used the following objectives:

- i. Investigate the type of instructional media and technologies used in the teaching and learning processes.
- ii. Examine factors that influence interactivity and effective use of instructional media and technologies in the teaching and learning processes.
- iii. Investigate the preparedness of teachers on how they use instructional media and technologies in the teaching and learning process.
- iv. Identify some of the challenges teachers and students face in coping with the use of various instructional media and technologies in the teaching and learning processes.



#### **1.5 Research Questions**

- i. What types of instructional media and technologies are used in teaching and learning in schools within Offinso municipality?
- ii. What factors influence interactivity and effective use of instructional media and technologies in teaching and learning processes?
- iii. Are teachers adequately prepared, trained and equipped to successfully use instructional technologies?
- iv. What challenges do teachers and students face in the use of instructional media and technologies?

## **1.6 Significance of the Study**

The use of instructional technology in the teaching and learning process in the Ghanaian education system has received little or no attention. As a result, this research has far-reaching benefits to the schools as well as teachers and learners that were involved in this study as it will offer them an opportunity to reflect on the instructional media/technologies used in their schools. The study is expected to have these significance. It is envisaged that the findings and the recommendations will be beneficial to all the stakeholders in education. It will help them to appreciate the need for developing and infusing instructional media/technologies in the teaching-learning process which will be accommodated in the changes in the curriculum.

Teachers will find it useful to depth into the methodologies that incorporate authentic assessment and innovative teaching methods to prepare students to operate in diverse learners and learning environments.

Findings of the study will contribute significantly to policy formulation with regard to ICT Education/integration in Ghanaian basic school setting.

The Ministry of Education will also out of the findings and recommendations have a clear picture of how instructional media/technology are used in the basic schools. For this, seminars and workshops will be frequently organised for teachers to equip them on various instructional media/technologies issues in education.

Finally, it is hoped that the findings and recommendations will make it a major reference material for academia and other research institutions engaged in the research and or business of Basic Education, multimedia interactivity etc

### **1.7 Delimitation**

The study covered all the basic schools in Ghana and is restricted to basic schools in the Offinso Municipality in the Ashanti Region. Due to time constraints relating to the study, the researcher could not cover the entire Offinso Municipality. Specifically, it covered eight (8) basic schools including OFCE Demonstration JHS; State ‘A’ JHS, State ‘B’ JHS, Asamankama SDA JHS, Amoawi Methodist JHS, Christian Methodist JHS, Dominican JHS, and Immaculate JHS. Teachers and students are the end-users of the instructional media/technology used in the teaching-learning process. The study was sought to find out the effectiveness and challenges of using instructional media and technologies in teaching and learning. Nevertheless, other schools with the same problems or similar can make good use of the study or its findings since it has similar characteristics.

### **1.8 Limitations**

Data collection for the research encountered many disruptions from school activities such as workshops and seminars, cultural festivals, games and sports. This prevented the researcher from collecting data within the specified period.

Teachers who agreed to have their lessons observed also decided to be extra careful during the teaching and learning process since they did not want to expose themselves as they tried to be artificial just to cover up their weaknesses.

Also, the evolution of Covid-19 and its following effect of lockdown let to the closure of all schools made it very difficult to contact both teachers and students to observe and answer the questionnaires hence, delayed in data collection.

## **1.9 Organisation of the Study**

The dissertation is organized into five chapters. The first chapter talks about the introduction, the background to the study, statement of the problem, purpose, objectives, significance, delimitation, limitations, and the organization of the study.

The second chapter captures the review of related literature which was written on such themes as the theoretical and conceptual framework, teaching and learning, instructional media and technologies in teaching and learning, types of instructional media and technology (Classification), importance and benefits of using instructional media/technology, the use of instructional media/technology in the teaching and learning process, the availability and use of instructional technology, challenges facing teachers and students in the use of instructional media/technology, challenges of using instructional media/technology and the effects of instructional media/technology on learners' behaviour. The links among these concepts are established and summarized as such.

The third chapter focuses on the methodology which includes research design, and population, sampling techniques and procedures, sample size, research instruments, data collection procedures, an instrument for data analysis, validity and reliability of the instrument.

The fourth chapter, on the other hand, looks at presentation, analysis, discussion of the results and findings while the last chapter, chapter five deals with a summary of the study, findings, conclusions, and recommendations as well as suggested areas for further research.

## **1.10 Definition of Terms**

In this study, the following words have been used for the purpose and with the intention as explained below:



**Instruction** – Is the purposeful, orderly, controlled sequencing of experiences to reach specific educational goals.

**Teaching-** The term teaching refers to the actions performed by a professionally trained person that intended to enhance the cognitive, personal, social, and physical development of a learner.

**Learning-** The process of gaining new skills , knowledge, understanding and values.

**Media-** It is the plural form of the word “medium” derived from Latin which means anything that conveys a message between sender and receiver. In teaching and learning, it refers to devices for transmitting content to the learner to achieve effective instruction.

**Technology-** This is a planned systemic method of working to achieve planned outcomes as a process, not a product. Technology is the applied side of scientific developing a systematic body of facts and principles related to a comprehensive practical and useful end.

**Instructional technologies:** These are the theories and practices of using technology for education. It includes the design, development, use, management, and evaluation of technology in education. Instructional technology can take many forms (anything from electronic whiteboards to online courses or even virtual reality classrooms can be considered instructional technology).

**Instructional media:** These are supplementary materials used by the teacher in the teaching process such as chalkboards, charts, models, overhead projectors, films, and computers.

**Integration:** The adoption, inclusion, and use of resource materials/equipment to aid instruction in the teaching and learning process.

**Pedagogy:** Is the study or science of ways and methods of teaching.

## CHAPTER TWO

### REVIEW OF THE RELATED LITERATURE

#### 2.0 Introduction

To empower teaching and learning through guided inquiry, both teachers and students must have access to instructional media and technologies in schools (Linn & Eylon 2011). To authenticate the study and to avoid unnecessary duplication and replication, this section of the literature review focused on the challenges facing teachers and students in the use of instructional media technologies in the teaching and learning process. It highlights the following themes:

- the theoretical and conceptual framework,
- teaching and learning,
- instructional media and technologies in teaching and learning,
- types of instructional media and technology (Classification),
- importance and benefits of using instructional media/technology,
- the availability and use of instructional technology,
- Guidelines and Principles for Using Instructional Media/technology
- the use of instructional media/technology in the teaching and learning process,
- challenges facing teachers and students in the use of instructional media/technology,
- challenges of using instructional media/technology and the effects of instructional media/technology on learners' behaviour.

#### 2.1 Theoretical Framework

The study was based on the theoretical formulation of the ACTIONS model making decisions about the use of pedagogic technology and planning lessons that technology

will enhance. This model was developed by Bates in the year 1990 for making decisions about the use of technology and it suggests factors to be considered when using the model to enhance effective teaching and learning. (Tsang & Choi, 2020)

ACTIONS are an acronym for the description of a set of tasks central to the informed selection and use of instructional technologies in classroom teaching. The tasks are;

A – Accessibility

C – Cost

T – Training

I – Interaction

O – Organization policy

N – Novelty

S – Speed

The actions model is an appropriate model to be used for this study because it talks about selection, planning and usage of appropriate technology to enhance teaching and learning which is in line with the core or the main objectives of the study.

In this case, the “A” stands for accessibility which deals with how accessible is the resource to the teachers-students or student to student. How accessible is the technology in your school? This first step is based on the recognition that some factors such as administration and storage may interfere with how well the students and teachers utilize instructional technologies.

The “C” stands for cost meaning capital and recurrent fixed and variable in variable budgeting. If the resources are expensive, then schools will not be able to afford them. Cost is a key thing in deciding on the technology. This can be overcome by proper management of both internal and external bodies by the school managers if the school

goals and guidelines on the teaching and learning process have to be realized meaningfully.

The “T” stands for teaching and learning. A relevant question to ask is what are the best instructional technologies available for supporting teaching and learning? Do teachers use instructional technologies in their teaching? Are they trained to use technology media/technologies? What is the presentational requirement of the subject? What are the required teaching and learning approaches? This can be overcome by in-servicing the teachers.

The “I” stands for interaction and user-friendliness, that is, what kind of teacher and student interaction will be possible? Is it teacher-student or student-student interaction in the use of the technologies? Are they able to interact with instructional technologies or there is no Learning Resource Centre, library or laboratory? Or the instructional media/technologies are kept in the head teacher's offices?

The “O” stands for the organizational issues: what are the organizational and institutional requirements to provide stability and support on the use of instructional technologies or a particular technology? What are the barriers to using instructional technologies? What changes need to be made within the organisation to incorporate instructional technologies in lesson delivery? This can be possible if there is “openness” in resources and use proper communication flow.

The “N” stands for novelty meaning, how new are the instructional technologies? Will the "trendiness" newness of the technology stimulate funding and innovation? This can be possible if the staff are involved in decision-making on the purchase of new equipment and resources and networking of the instructional technologies available in the school.

The “S” stands for speed. This looks at how quickly and easily materials can be updated and changed? How fast can we launch teaching using these technology resources?

ACTIONS model is just one strategy in the attempt to effectively integrate instructional media/technology into the curriculum. However, it must be noted that the availability and appropriateness of the materials do not guarantee the realization of stated objectives. The material should be presented in an orderly, logical and sequential manner at an appropriate time and in a conducive environment. Hence, how the materials should be presented in an orderly and appropriate manner at an appropriate time and in a conducive environment is a test case for this study. The study, therefore, seeks to establish the effectiveness and challenges faced by teachers and students in the use of instructional technology in the teaching and learning process in Basic schools in the Offinso Municipality.

## **2.2 Conceptual Framework**

This study was conceptualized to contribute to the improvement of Basic School Curricular instruction through the use of instructional media/technology. Human learning is naturally an active mental and social process (Ma, Zhang, Guo, Lai & Vogel, 2021)

Students must interact with their environment and manipulate objects to determine proper interpretations of phenomena. For teaching and learning to be meaningful, instructional media/technology must be incorporated in the process which is geared towards the student's interests, abilities, and readiness to become involved in the teaching and learning situations.

According to Subramony, Molenda, Betrus and Thalheimer (2014), Dale notes in his “cone of experience” that for learning to be meaningful, there must be interrelated learning experiences through the use of instructional media/technology to make learning

as interesting as possible. There must be a connection between symbolic (words), observation of phenomena, and participation that make up the foundation of learning. Bates calls this an informed selection and use of educational technology in classroom teaching as demonstrated in the ACTIONS discussed in the theoretical framework above (Hashim, Alawy & Hammed (nd))

Relevant strategy, instructional media/technology, and methods must be employed to achieve the intended objectives. Learners begin their learning of specific matter with a broad base of direct experience in action. Gradually they omit these specific, firsthand, concrete occurrences and impressions as they come to rely on iconic substitutes or pictorial representations. At both stages, the learners develop a summarizing idea or symbol (Frey & Sutton, 2010). These important ideas indicate the broad base that direct experiences provide for students' learning and communication. It classifies various types of instructional technologies according to the relative degree of experiential concreteness that each can provide. The cone suggests the interrelated interdependent nature of learning experiences and the use of instructional technologies; hence making mediated learning simple, enjoyable, and stimulating for the learners. Bates ACTIONS model, therefore, becomes handy if this has to be realized.

The teacher observes the learner's behaviour and measures the success of the instructional process as the learners receive from instructional technology (use of it) and react to them as well. This gives the teacher clear feedback and helps in assessing the learning outcomes which is the new trend in modern teaching (Newby, Stepich, Lehman & Russell 2006).

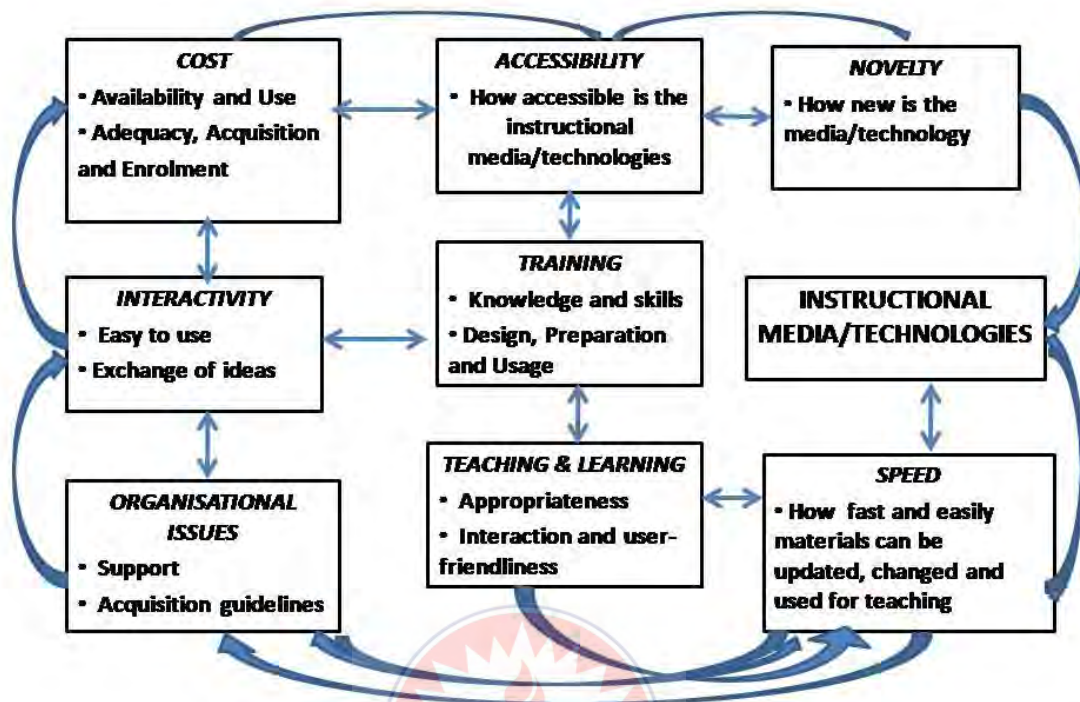
Patel (1986) as cited by Alice (2012) notes that effective use of instructional technologies should be guided by; learning needs, quality of materials, and the possibility of a combination of materials. The teacher should select instructional

media/technology that will accomplish the task of meeting the learning needs by helping learners to achieve the specific objectives constructed for specific content, hence the technological pedagogy in teaching and learning.

According to Hugo (2021), an effective and meaningful teaching-learning process must provide for reflective practice. It should pave way for core educational activities through which students will acquire determined skills and a myriad of diversified learning opportunities as provided by technology. It will be easy to design and plan a common activity and at the same time cater to individual differences of students (Gillett-Swan, 2017).

According to the Ministry of Education, Science and Technology (2005) sessional paper No.1, teachers should be provided with a variety of instructional technologies as these are tools that facilitate effective teaching in order to improve students learning. In an individualized approach, the students are encouraged to undertake tasks from which it is possible to understand whether they reach the required level of performance related to a specific activity (the task is given). However, optimal use of instructional media/technology can be embedded in unavailability, inadequacy, inaccessibility, cost, lack of knowledge to operate the equipment among other reasons. As stipulated in the cone of the learning experience, teachers must therefore refine the techniques for effective use of instructional media/technology if the maximum contribution of instructional media and technology to learning is to be accomplished. The conceptual framework is summarized in figure 1.1 below:

**Figure 1.1: Conceptual Framework on the use of instructional media/technology for teaching and learning.**



Source : Authors own construct (2021)

## 2.3 Teaching and learning

In this section, the concepts of teaching and learning were explored about instructional media/technology use during the process of teaching and learning.

### 2.3.1. Teaching

Teaching takes place not only in educational institutions but in different places such as in the home, at workplaces, and even during leisure periods. Teaching is referred to as what takes place in schools. According to Bakar (2018) teaching is what is done by a professionally trained teacher, to promote the cognitive development, personal development, social development, and physical development of learners. Schools have been established to ensure that this aim is achieved during the process of teaching learners to acquire knowledge, skills, to use in life.



Acquisition of skills and knowledge is not done passively but actively. Taricani (2021) argue that teaching should not be regarded as a mere process of transmission of knowledge, but rather the active engagement with learners in collaborative construction of meaning. Thus, learners receive information that is fundamental in forming knowledge. For the teachers to present information to learners in a way in which they can easily grasp they use instructional media/technology. These are used in instructional situations as a means to supplement the effort to enhance learning.

There are many strategies, forms, and methods teachers can use and the choice of these must factor in resources to be used in the teaching process, especially resources to do with assisting to convey the message. These resources are referred to as instructional media/technology. Ghavifekr, Razak, Ghani, Ran, Meixi, & Tengyue, (2014) state that communication is the first-order principle that forms the basis of all competent teaching methods which involves using media and technologies to communicate concepts to enhance the understanding of the message being put across.

One of the most common teaching methods is the Textbook method. It is a method that relies more on printed text. According to Alice (2012), text refers to “the wording of something written or printed”. Therefore this method of teaching requires text as an instructional medium.

Another teaching method that requires the use of instructional media/technology is the experimental method. Undoubtedly it facilitates the discovery of reality using objects which learners can observe, touch, and manipulate to develop insight, knowledge, skills, and attitudes (Fraiser et al 1992, as cited in Alice, 2012). The objects used in the experimental method are examples of instructional media/technology.

The demonstration method requires carrying out a series of actions by a competent teacher or a resource person with the aid of instructional media/technology. It is a

teaching strategy used to discuss thought with the guide of visuals like flip charts, banners, PowerPoint, and so forth. A demonstration is a method involved with showing somebody how to make or accomplish something in a bit by bit measure. As you show how you “tell” what you are doing. A demonstration consistently has a completed item. The way into a decent demonstration is for the students to have the option to return home and do what you have shown them how to do. Mupfumira and Mutsambi (2012) considered demonstration method as a basic method for teaching skill type subject matter. Through a demonstration, students will be aware of the expected standard and a physical explanation of the practical process as well as utilising several senses such as touch, sound, sight. However, demonstrators can use media/technology such as specimens or models as instructional media. It is now clear that any particular method, strategy, or form of teaching requires the use of teaching aids.

If teaching is going to be very effective, then teachers need to use the multiple method approach. It's a method of using a variety of methods in one lesson so that learners may find one or more which appeal to them to assist them to grasp the concepts being taught. Teaching requires the teacher to use methods, strategies, and forms which in turn use instructional media/technology so that learning takes place.

### **2.3.2 Learning**

Learning is an activity that takes place from birth. (Marković, Pogarčić, and Mezak, 2012), describe learning as a complex process that runs throughout our entire life. As soon as a child is born he or she learns to suck milk and at times learn that crying brings in the attention to signal a want or a discomfort. Learning can be defined as a goal-oriented activity, which is constructive and involves the cumulative processing of

information into meaningful and useful knowledge. Learning has an objective to process more information which builds up to form knowledge (Stewart, 2016).

Learning is therefore viewed as a universal life-long undertaking in which the individuals modify their behaviour to adapt to their environment by using different approaches. Given individual differences, learning can be a personal activity. Learners have different learning styles and preferences during learning. As Gunter et al (1995:7) as cited in Stewart, 2016) put it “a variety of learning styles will be present in every classroom”. These are intended to suit the learning styles of different learners.

Given the different styles of learning of different individuals, it also means that learning preferences require different instructional methods to suit the learning needs. As such teachers employ different methods of teaching to stimulate learners to actively engage in the learning process. A variety of different instructional methods require also different instructional media/technology. The use of a variety of instructional methods is intended to address the idea of different learning styles in information processing which end as knowledge gained by learners (Fenton & Watkins, 2012). Matignon, Laurent and Fort-Piat (2012) points out the many different approaches to learning that is evident in the literature and yet none of them is independently able to explain all modes of learning. This is because learning is a reflective activity that enables the learner to draw upon previous experience to understand and evaluate the present, shape future action and formulate new knowledge. Hence, learners create or construct knowledge by acting on and interacting with the world. The world consists of the world of objects, and in the classroom, objects refer to a variety of instruction media. Hence media is critical in the learning process.

Learning can be viewed as a process. It can take place over a relatively short time and learners can show that they have learned something through the way they respond and

adapt to a new situation. There are a lot of things that we learn, for example, to write a composition, to solve mathematical problems, or to ride a bicycle. Learning facilitates intellectual growth as well as moral development. Learning brings about change in the behaviour patterns of learners. Learning experiences learners go through result in changes in the mental structure of learners and influence their behaviour and this is the objective of learning (Opoku-Asare & Siaw, 2015). As mentioned earlier on, learning differs from individual to individual and also takes into cognizance social, economic, perceptual, physical, and psychological factors. Our senses have a critical role to play during learning, these are seeing, feeling, smelling, tasting, and hearing. They facilitate meaningful engagement and interaction between the environment and the learners for learning to take place.

Although our senses of perception are important during learning, attentiveness, receptiveness, and appropriateness are important to consider during active learning (Opoku-Asare & Siaw 2015). Attentiveness refers to the ability of the learning activities. This can be achieved by the teacher through stimulating activities that can enable the maintenance of a high level of learner attention and concentration. Receptiveness hinges on the teacher's ability to make use of different tactics to motivate learners to learn such that learners become receptive to what is intended for them to learn. Appropriateness is concerned with matching what is being learned to the cognitive level of development of learners as well as making certain that what is being taught is within the limits of stated educational objectives. It also involves formative evaluation during teaching and learning to ensure that what is being learned is assessed now and again.

Given the training teachers go through it enables them to be capable of selecting effective and efficient ways of creating learning experiences that help learners to conceptualize and interpret learning experiences and concepts. The teacher brings into

the classroom the real world in form of instructional media/technology. For example, it might be dangerous to bring into the classroom a live snake and show fangs. Rather the teacher can use models or pictures which appeal to the sense thus making them involved in the learning process. The use of appealing instructional media/technology arouses interest, accurate interpretation grasping of concepts and enables learners to remember what they learn in the future. (Stewart, 2016)

## **2.4 Instructional Media/Technologies in teaching and learning**

According to Naz and Akbar (2008), the word media is the plural form of the word medium and it refers to a channel of communication. In the same vein, Dewdney and Ride (2006) acknowledge that the term media refer to anything that carries information between a source and receiver. Media from a teaching-learning perspective relates to aids used by teachers to transmit or deliver learning content to learners for effective learning to take place. Instructional media, therefore, refer to devices and materials used in teaching and learning (Omariba et al, 2015). Instructional media include a variety of all materials and physical means an instructor might use to implement instruction so that instructional objectives may be achieved. These include traditional materials and modern materials.

The following are traditional instructional materials, textbooks, chalkboards, charts, handouts, slides, overheads, real objects, videotapes, and films. Of late the following have also come in handy as an effective teaching and learning media, that is, computers, digital video decoders (DVD). Compact Discs (CD), the internet, and interactive video conferencing.

Technology is the use or application of human senses and abilities to perform tasks. The implication here is that human beings will be helpless in our environment without one

form of technology or the other. According to Stewart (2016) “technology is that complex of human activity which is concerned with using the findings of art and science to solve problems...”. This definition indicates that useful ideas in art, that can help solve problems, can be termed as technology. It also means that any useful ideas, devices, procedures, methodology, hardware, and software are all forms of technology.

Instructional technology is part of educational technology which is concerned with the improvement of education within the classroom or school system and the improvement of the whole society through education. It is the application of the theories of psychology, curriculum, and innovation to designing, producing, and using hardware and software to make classroom teaching more effective.

Alice (2012) views instructional technology as ones like money, materials, and people necessary for the pursuit of some goal. He observes further that they are resources and equipment which include teachers, students, computers, skill models, and other people's knowledge in a specific subject area from which students might learn. Omariba et al, (2016) calls these instructional technologies as teaching aids that must aid the teaching of a topic. They are rich text materials that combine multimedia such as print, models, mock-ups, filmstrips slides, transparencies, audio, and video into one well-thought-out and designed package (Ando, 2016). It means that aids do not do the whole tasks as parts of the tasks are done by a teacher in a well-controlled manner. Alice (2012) again observes that: “... a single method or a single medium of instruction will not suffice even if only because it will become unbearably monotonous. Variety among instructional media seems more efficient than a monopoly of one...”

According to Smaldino et al (2012), the word instruction refers to international efforts to stimulate learning by deliberate engagement of experiences to help learners to achieve the desired change in capabilities. Undoubtedly instructional media/technology facilitates

learning through organizing information and environment which encompass media and technology. Furthermore, Smaldino et al (2012:25) describes instruction as sets of events external to the learner designed to support the internal process of learning.

There are certain factors to put into consideration concerning the use of instructional media/technology. Teachers need to take into account the learning styles of different pupils in their classes, to gain psychological traits that determine how individuals perceive, interact with, respond to the learning environment, multiples intelligence, perceptual preferences, strengths, information processing habits, motivation, and physiological factors have to be factored when choosing a particular instructional method Smaldino et al (2012). Choice of what type of instructional medium or technology has to take the above-stated factors into account to achieve effective and efficient learning. The main purpose of using instructional media/technology according to Newby, Stepich, Lehuna, Russell and Otlembret-Leetwich(2011:120) is to facilitate communication and enhance learning. Therefore media/technology can enrich the classroom environment while at the same time stimulating learners.

If proper care has been exercised in designing instructional media/technology, skilfully produced, and effectively used, then it has multiple benefits. These are, instructional media/technology saves time, increases interest, holds attention, clarifies ideas, reinforces concepts, adds tone to the lesson, proves a point, and helps learners not to forget what they taught.

The role played by instructional media/technology cannot be overemphasized especially when teaching learners with special needs such as learners with disabilities, for example, learners with a hard-of-hearing disability or learners with visual impairment. Such learners need special instructional media/technology which is supplemented with adaptation and specially assigned for effective instruction for such students. For

example, hearing aids device or a Braille typewriter, or talking calculators or computers. Fatimah and Santiana (2017) sum up the major point of using instructional media/technology among others to make the teaching and learning environment more interesting and effective.

However, instructional media/technology can generally be defined as “a combination of resources including people, materials, machines, facilities as well as purposes and processes that support effective and meaningful facilitation of learning”.

## **2.5 Types of instructional media/Technologies (Classification)**

There are many ways of classifying instructional media. Different people from different educational backgrounds have attempted to classify instructional media and technologies in different many ways:

Dale (1969 as cited by Lee & Reeves 2018) categorizes instructional media and technologies as visual, audio, and audiovisual materials. According to Smaldino et al (2012, p187), “Visuals provide a meaningful reference for ideas, make abstract ideas more concrete, motivate students, help to direct attention to important concepts, provide assistance for recalling and most importantly reduce the effort required in learning”.

Visuals include pictures, charts, graphics, posters, drawings, cartoons, and diagrams on computer screens, illustrated books, filmstrips, photographs, flashcards, maps, posters, exhibits, flip books, self-instructional materials, bulletin boards, magnetic boards, flannel graphs, dioramas, models, mock-ups, slides, transparencies, silent films, chalkboards.

There are teaching and learning materials or devices in written form as texts as well. Learning materials that help learners to understand the concept through the use of their eyes can be described as visual instructional media.



The audio includes all the materials which can appeal to the ear. These are the Radio, Audio cassettes, Recordings, Broadcasting Television, language laboratories, Compact Discs (CD) tape, and telephone, sound distribution system, and even people. The major skill that is developed through this skill is listening to skill.

Audiovisual materials comprise television, films (8mm, 16mm, 35mm) videotapes, sound filmstrips printed materials with recorded sound, study trips, and demonstration.

According to Precious, (2020), Ayot, (1986) categorized instructional Media/technologies into three broad groups. The first category comprises software resources such as books, periodicals, newspapers, posters, flashcards, charts, cartoons, globes, and maps, flannel boards, chalkboards, exhibits, and bulletin boards. The second category consists of resources such as projectors record players, radios, films, televisions, magnetic tapes, slides, aural aids, sound and still projectors and the third category is of community resources like field trips, environment, and people. According to Dube (nd), Kemp and Dayton (1985), categorized instructional technologies into nine kinds of media. These include; print media, display media, overhead transparencies, audio-tape recordings slide series, filmstrips, multi-image presentations, video recordings, and computer-based instruction.

Instructional technologies are therefore real things, verbal presentation, still pictures or objects, sound or audio recordings, programs and simulations.

A comprehensive and detailed taxonomy of media has not yet appeared in the literature. This observation is upheld by Alice (2012) who urges that the function of a good taxonomy of media is not merely to order materials but, should be based on functioning if has to be relevant to the teaching and learning process. Despite the above argument, attempts have been made by media specialists, educational technologists, and psychologists to develop a multidimensional taxonomy of instructional technology. Thus

instructional technology has been classified differently by various media specialists and educational technologists.

In this study, the researcher proposes to categories instructional media/technology into three broad categories namely; print materials, display materials, and ICT materials. The print materials comprise books, magazines, brochures, newspapers, journals, periodicals, and school pamphlets. Display materials also include realia, maps, diagrams, pictures, photographs, graphs, charts, models, diorama, globe, posters, and paintings while ICT materials will include televisions, videos, live radio broadcasts, and computer/internet. This categorization is justified since these are the most commonly used materials for teaching and learning in most secondary schools (Precious, 2020).

Great teachers have instructional media/technology used effectively and this is an indication that teachers can also use them today to make their teaching more effective and efficient (Precious, 2020). From the above classifications by different scholars; one is justified to argue that there is no uniformity in the classification of instructional technologies.

## **2.6 The availability and use of instructional technology**

The use of instructional media/technology should greatly depend on their functions. One of Zayed university's publicly articulated missions is to lead education in the United Arab Emirates through teaching, learning, research, and outreach and to achieve this leadership in a technologically advanced environment. In fulfilling this goal, the university actively promoted instructional media and technology application among faculty, staff, and students delivery (and completion) of lessons through advanced technology; use of sophisticated software and information gathering via the internet (Moore et al., 2003). Though the hope was that information technology could add a

powerful punch to the modern educational environment, many educators in the United Arab Emirates have found that it is the proper use of available instructional media or technology rather than the presence of that technology advances learning (Moore et al. 2003). Even long-time favourite pencil and paper and the overhead projector still have a place in the well-rounded modern classroom. Whether old or new, each media or technology has unique qualities (or “affordances”) of which advantage can be taken (Moore et al. 2003). They make instructions real and spice the teaching and learning processes (Hung & Khine, 2006).

A study by Newby et al., (2006) on the use of instructional media/technology in American schools indicated that technology cannot become meaningful support for students' work if they have access to it for only a few minutes a week. The kind of technology-supported project-based instruction described requires a high level of access to the sorts of technology tools that researchers and other professionals use daily to support their work. According to Alice (2012), Gyorgy Katona used instructional technology (ICT in teaching Physical Education (PE) and it increased pedagogical effectiveness in schools and the University of West Hungary in Hungary. In the state of Illinois in the United State of America, ESTRELLA a collaborative effort among five states and key partners have demonstrated how technology can be used to improve the achievement of migrant students especially those from high school who had difficulties in transferring credits from one school to another and from one state to another. These students are assisted on available career and educational opportunities too. Also, ESTRELLA provides professional development for teachers working with participating students to further their technological skills (Mwai 2015).

According to Omariba et al (2016), Onadivan (1981) carried out a study on the use of library resources in Nigeria. The study revealed that there was an acute shortage of print

and audio-visual materials in most schools. The study findings were similar irrespective of the geographical location, type of bordering facilitates, and the size of student involvement. According to Azeb (nd), a study on the use of community resources in elementary schools in Ethiopia indicated that most schools lacked adequate and appropriate instructional material.

Although teachers appreciated the role played by the use of instructional technologies in the teaching and learning process, they hardly use most of these instructional media or technologies available in their schools. They always make use of the books assigned to the class as the only instructional resource in addition to the chalkboards and laboratory equipment to support teaching and learning (Omariba et al., 2015).

According to Muvango, Indoshi and Okwara (2019), there was the availability of media for use yet teachers were not using them regularly during lessons. The most available non-textual media in schools were the chalkboard, resource persons, and charts (various types) while no school had videotapes films or computer-mediated materials to support teaching and learning.

The study further revealed that most teachers did not explore the different possible sources of instructional technologies to supplement their teaching. The knowledge gap as portrayed in the study is that only community resources were investigated. Omwenga, (2008), did a study on how Information Technology (ICTs) provides a window of opportunity for educational institutions and other organizations to harness and use technology to complement and support teaching and learning in Ghana. From this study, there is a knowledge gap on the use of other instructional media/technology which the current study proposes to investigate other instructional media/technology acquired and used in secondary schools.

The above studies did not address the challenges teachers and students face in the use of instructional media/technology in basic schools. Globally new resources have been developed especially the use of ICT which is currently gaining prominence and one of the most important components bridging the gap of basic competencies of students (Newby et al. 2011). For instance, Waema (2005) did a study on the impact of the ICT revolution throughout the world which cannot be ignored where he cites that most countries have gotten computer literacy. He cites India as the country with the largest scientific management in the world whereby the country can provide computer education through television and via the internet. Australia also prioritizes ICT education according to Lehman, Newhouse & Sax, (2020). Malaysia is another country that too gives priority to ICT education. The government grants a tax exemption on the import of multi-media equivalent as an incentive to one of its ICT cities referred to as cyber Tanya.

According to Buabeng-Andoh (2015) report, incorporating ICT into the educational curriculum has been promoted as a key step in bridging the digital divide in Ghanaian schools in recent years, and the sacrifices made to finance these there has been little evaluation of their effectiveness. Further the article by Padraig Wims and Mark Lawler “investigating ICTs in educational institutions in developing countries; an evaluation of their impact in Kenya” describes research that seeks to redress this by examining in Kenya revealed tangible benefits to students from exposure to ICT. It was also found that exposure to computers in schools influenced the career choices of former students. Ghana, like most other developing countries, ICT usage is still limited to computer literacy training. This contends that the present ICT curriculum merely deals with “teaching about computers” and not how computers can be used to transform teaching and learning in our schools. ICT integration should therefore consider learning pedagogy, the pattern of student use of ICT, and the extent of use in teaching and

learning programs. A wide range of instructional media and technologies should be selected and incorporated into the teaching and learning program.

However, previous studies failed to look into other instructional technologies and challenges facing both the teachers and students in the use of those instructional media and technologies in basic schools which the researcher of this study seeks to investigate.

## **2.7 Guidelines and Principles for Using Instructional Media/technology**

Gashu (2019) indicates that teaching and learning materials to be used by a teacher should be considered in terms of concreteness or abstractness of the experience which the media would produce. To this end, teachers should also be sensitive to the changing situation within the classroom and have alternative media to meet the individual differences of the learners. The basic guiding principles that teachers and other stakeholders must adhere to during preparation and use of teaching and learning materials are: keeping the materials simple, clear, visible, environmentally conducive and appropriate for the concept being taught (Nantwi 2016)

Teaching and learning materials are anything used to send message(s) from the sender(s) to the receiver(s), so it can arouse the learners' thoughts, feeling, and interests to learn. When used effectively TLMS contribute greatly to the achievement of instructional objectives. However, it is essential to match them with appropriate methodology in the classroom situation (Nantwi 2016).

The following are the guidelines to be followed when using teaching and learning materials:

- Preview all TLMS before they are used in the classroom. This helps the instructor to become more familiar with the content and structure to avoid inconveniences in the course of using it.

- Practice using the material especially multimedia in the actual classroom before the lecture begins. They should always be readable from a distance especially when reproducing from texts and enlarging graphics.
- The audience's line of vision should not be obstructed. Materials should be displayed only when the instructor is ready to use them.
- Materials should be discussed one after the other.

Atuahene (2019) also suggest that for teachers to achieve maximum results in the use of teaching and learning materials, they should apply the following principles.

- Select material with appropriate attributes.
- Introduce material to a learner by relating it to prior learning and indicating its relationship to present objectives.
- Present material under the best possible environmental conditions
- Get feedback from learners.
- Evaluate the impact of the materials.

Other factors that caution teachers to consider the use of teaching and learning materials are:

- The nature of the audience, in terms of chronological age, sex social, cultural, environmental, and economic background of the learners,
- Entry-level,
- Motivation,
- The physical abilities or disabilities of learners,
- Learners long-established perception and cultural characteristics,
- The objectives to be achieved (whether cognitive, affective or psychomotor),
- Nature of the subject content,

- Physical qualities of the media. The attributes, authenticity and significance of the content,
- Cost of the media,
- the expected role of students, and
- The mode of instruction among others.

## **2.8 The use of instructional media/technology in the teaching and learning process**

Properly designed learning materials inspired by technology and delivered technologically add value to a teaching environment in which contact hours are limited but balancing between the potential of technology and the careful grooming and attention of students sometimes require a critical observation (Walters et al. 2016). Technologically inspired teaching materials should create a “cognitive apprenticeship” that should help develop underlying thought processes such as critical thinking, analysis, and problem-solving. Instructional technology can do other things as well. New materials delivered via the internet that help with the repetition necessary for developing reading, writing, and listening in English can eliminate drudgery for educators and can be entertaining. Because of their lifestyles, the entertainment value is a key consideration for students in media-rich environments urges Alice (2012). Omariba et al (2015) asserts that instructional technology in the teaching-learning process makes learning an interesting and fulfilling experience as the students find it easier to follow, understand, respond to and retain the content learned. instructional media/technology heighten motivation for learning thus the lesson becomes emotionally stimulating as well as intellectually rewarding, they provide freshness and variety thus providing students with experiences that are fresh exhilarating delightfully new and varied, they appeal to students of varied abilities, they encourage active participation in the learning process as



students heighten their sense of involvement by engaging in stimulating, provocative discussion and allows students to make immediate use of their learning as they apply it in meaningful ways to new situations and unexpected events hence making involvement inevitable Mangal (2009).

Alice (2012) cited Jean Piaget a Swiss psychologist who argues that “the more a child has seen and heard the more he/she wants to see and hear...” This means that resources give needed reinforcement such as the programmed instruction and computers provide many ways in which a student is rewarded by finding out how well he/she has learned, they widen the range of students’ experience, assure order and continuity of thought especially if it is a well-prepared television program, motion picture or film trips, will present the subject matter in a logical carefully structured fashion and finally improve the effectiveness of other materials as they provide a rich variety of sensory experience to amplify and reinforce the concepts that have been presented in textbooks, observes Newby et al. (2006).

According to Alice (2012), Dale (1969) urges that: “...through meaningful diversity of instructional methods, we help the child to develop meaningful concepts. His/her relative sense ...involved learning modify and extend the range of his/her abstraction...”.

Muliani (2018) have observed that: Education described rich text materials (materials combining multimedia such as audio and video among others) as potentially enriching, experiential, flexible, fun, powerful, self-paced, and time-saving. They also believe that properly used technology could further critical thinking and independent learning, expand individual exploration, shift some of the learning out of the classroom, expand time for other classroom activities liberate (student and teachers alike) from the mundane, create an environment of learning, experimenting doing and enjoying and the level of the playing field between public and private schools.

This implies that many courses can combine old and new media or technologies and thus create a more effective and dynamic classroom. The successful combination of old and new means aims at blending the delivery of class materials and creating “rich text materials”. Blending delivery is delivering educational materials in multiple means, including textbooks, online learning management systems, the internet, the intranet, and CD ROM. Rich text materials are those that combine multimedia such as print, audio, video into one well thought and designed package. With careful consideration, each instructional technology can be used for what it does best (Omariba, et al 2015).

That is because both blending and creating rich text maximize the affordances of a technological medium: what the medium offers, what it provides, what it furnishes, and what it invites. For instance, the paper offers several common affordances. Paper is thin, light, porous, opaque, and flexible. That means one can write on it, fold it and bind it. Digital technology also offers several unique affordances. It is dynamic, keyboardable, and can manage large amounts of information. That means one can create interactivity and dimensionality and can simultaneously appeal to more senses than paper acknowledges.

Newby et al. (2006) argue that because of complexities and the need for expertise, educators should not be expected to create solutions on their own. While they should be familiar with the software that powers it, they are full-fledged technicians and should not be expected to be. Because of the workload, lack of dedicated time, and occasional technological intimidation, educators should be partnered with others in “production cells” to author rich text materials and to determine means of delivery. Some who have had success in integrating multimedia into course structures have found that these production cells should include a content expert, an instructional designer, and software expert observer notes (Walters et al. 2016).

Based on the new Curriculum of Ghana Education Service, the country is now poised to infuse ICT in all her subject areas. This then demands an increase in the number of professional organizations through which teachers can acquire new knowledge in their respective subject specializations. According to Bhalla (2013), schools' teaching and learning ICT can be incorporated in Computer Assisted Instruction (CAI) and Computer Managed Instructions (CMI). Also, the use of the internet, electronic mail, conferencing file transfer, and topic searching has provided access to information that covers a variety of topics in research, Science, and technology.

In conclusion, as a means of facilitating teaching and learning in schools, instructional media/technology is not just a means of transforming knowledge, but the most important thing is, an extension of both the teacher and the chalkboard. In this case, the curriculum or the syllabus can apply instructional media/technology with ease and students can be comfortable with minimal assistance since they increase interest, comprehension, and retention. However, they add concreteness to the teaching situation and increase motivation.

## **2.9 Importance and Benefits of using instructional media/technology**

Instructional media/technology acts as a tool of the trade to teachers in teaching and learning engagement. Undoubtedly this lies in their ability to facilitate communication in the classroom situation. Tuimur and Nchemwei (2015) supports the fact that the significance of instructional media can be evidenced by the potential they have to make learners learn more about what they learn. Furthermore, where skills development is the intended learning outcome to be achieved, instructional media/technology enables learners to learn, practice, and apply skills learned.

The importance of instructional media/technology to learners includes also a provision of a concrete basis to promote abstract thinking. The use of instructional media renders learning experiences more concrete and realistic and helps to teach abstract concepts in a meaningful manner. Therefore instructional media/technology can be generated by students to promote collaborative learning, creativity, and mastery of ideas and concepts. Instructional media/technology assists the teacher to clarify concepts. As a result, teachers are saved time and energy. For example, when teaching listening skills the teacher can use a recorded video clip or cassette. Azikiwe (2007) asserts that instructional media/technology helps teachers to communicate effectively and accurately and they can be used as reference points.

The rationale for the use of instructional media/technology is to assist teachers to achieve the objective of teaching. Instructional media/technology goes a long way to enhance the quality of teaching and learning. According to Boahen and Atuahene (2021) instructional media/technology can assist in attaining the instructional objective that educators set in their educational plans at the beginning of the course and facilitate learners' effective learning.

Suffice it to say that instructional media/technology because stimulates multi-sensory interest which leads to productive learning. They also generate interactive learning and make the classroom-friendly and attractive because of classroom displays such as wall charts, models, graphs, and pictures.

Instructional media/technology supports instructional activities; there are many benefits of using instructional media/technology in the teaching-learning situation which is also supported by various authors. These include;

**Gain attention:** Learners can pay more attention if music is played as a lesson introduction. Pictures on the liquid crystal display screen capture learners' attention and

sustain it during the lesson. Therefore the use of instructional media/technology enables learners to pay more attention.

**Recall prerequisite:** Learners can recall the concepts learned using instructional media/technology. If a learner can handle and manipulate media they can remember for a long time what they learned.

**Presenting a new topic:** The uses of learning media during the introduction of a new topic have an effective impact on learners. The experience heightens the expectation of more to come and can be more memorable if a movie or video is used as the media to introduce a new topic.

**Supporting learning through examples and visual elaboration:** Teaching and learning media such as computers and the internet brings the real world into the classroom. The use of video clips of a real situation or relief features can bring the learners to perceive what is next to reality. The use of the computer internet to study geographical locations and people from far away carries learners mentally to that place while in the classroom and it extends the dimension of experience and support learning.

**Elicit learners' responses.** Learners can respond positively through the use of instructional media. During the lesson, the presentation teacher can direct learners' attention to a specific learning concept. Questions can be paused or written on a chart asking learners to respond.

**Enhances retention and transfer:** Texts, pictures, videos, and other learning aids help learners to retain in memory what they learn. Learners visualize the lesson later and can transfer abstract concepts into concrete ideas that are easy to remember.

**Information dissemination:** Modern instructional media such as the computer, PowerPoint software is so advantageous in that, knowledge and information can be disseminated and able to reach a lot of people at the same time.

**Development of thinking skills:** Instructional media is of great advantage in developing critical thinking skills. They stimulate observation skills as well. Education aims at enabling learners to think critically so that they can solve problems in life.

**Communication:** Instructional media/technology helps the teacher to communicate accurately and effectively and serves as a good reference. Furthermore, they enrich classroom experiences and contribute to efficiency and depth, and offer a variety of learning Azikiwe (2007). The teacher is served the labour of repeating through the use of a variety of instructional media like texts and sound from a recorded tape.

In a nutshell, the benefits of using instructional media/technology include; assisting in retention and recall, gaining attention, reaching many learners at once, assisting the teacher to communicate effectively, and developing critical thinking skills necessary for problem-solving in life.

## **2.10 Challenges facing teachers and students in the use of instructional media/technology**

If teachers want to search for more effective and efficient learning experiences for their students, they need to have some general ideas about productive learning experiences that enhance instructional media/technology integration. Agbo (2015) reveals that instructional technology for the teaching and learning process was neither inadequate nor available. Some of the resources are available but inadequate were manila papers, brochures, journals, pamphlets, and pictures. However, audio-visual resources such as films, slides, radios, television, and tapes were not available. Models and specimen were not available and yet they can be improvised.

Japtanui (2011) observes that while many teachers complain about the lack of instructional resources, they are guilty of not using what is available. The current

researcher seeks to find out why these teachers are not acquiring and using what is available in their environment of reach/schools. Deori (2017) further revealed that print media was commonly used in teaching without being mediated. The above studies have not investigated why teachers don't use the available instructional technologies or challenges facing these teachers and students in the use of instructional technologies.

The proposed study sought to investigate the challenges faced by both teachers and students in the use of instructional media/technology. Boahen and Atuahene (2021) argues that through user education, the users of technology are supposed to acquire skills which are not in our case whereas Newby et al. (2006) observes that: "Rapid skimming of great bulky of materials of selecting important points of filling together bits of pieces of a variety of resources, come primarily from exposure to a wide range of materials and the demand to organize it into a useful form for some purpose."

These views are further supported by other scholars who note that many instructional technologies do not have the staff to cope with the use and failure to do so reduces the uses of the materials. A survey carried out in 2003/2004 as cited by Redempta and Elizabeth(2012) reveals that of 70% secondary schools require the need to establish standards for local area networks (LANs) to improve on sharing of learning resources. To add to the above, there is limited capacity for effective use and maintenance of instructional media/technology in learning institutions (Alice, 2012).

According to Seels and Richey (2012), instructional media/technology goes beyond any particular medium or devise. In this sense, instructional media/technology is more than the sum of its parts. It is a systematic way of designing carrying out and evaluating the total process of learning and teaching in terms of specific objectives. They further explain that, for improvement of instruction and learning, systematic planning wise and skilful use of the products of instructional technology are basic..."

However, under the system of education in Ghana, teachers have a lot of content to cover within limited time allocations. Teachers continually complain of an inability to cover the syllabus in time and adequately prepare students for the Basic Education Certificate Examinations (BECE), yet the use of instructional media/technology can help them reduce the length of time for instruction as most instructional media/technologies contain and can assist in presenting a lot of content in summary form (Yeboah 2014). The use of instructional media/technology for teaching is the most important role for any person who teaches (Abdo & Semela 2010). A lot of research has been done on instructional media/technology in teacher education curricula such as Shanguya (1995), Kimui (1988), and Omwenga (2008) but not the challenges facing teachers and students in the use of instructional media/technology in Basic schools which the current researcher seeks to investigate.

### **2.11 Challenges of using instructional media/technology**

The use of instructional media can be challenging. The challenges range from teacher incompetence in using instructional media, designing learning aids to institutional support for the provision of media to use.

According to Sickel (2019), some teachers do not have adequate competence to make instructional media/technology, let alone use them effectively to achieve learning objectives. This can be attributed to the lack of training and in-service in the use of teaching and learning media. Again, some teachers do not see the importance of teaching and learning aid.

Given the workload of not less than six courses at the basic level, it can be an overwhelming task to make learning aids for every lesson effectively. However some



teachers despite having adequate time and resources they are just lazy to source and improvise where possible simple media to use during the lesson.

The advent of new information communication technology especially computers has brought with it the threat that they will eventually replace the teacher in the classroom. The virtual school and online classes give the impression that the duties of a teacher have been taken by ICT. Although some may appreciate the need to use new technology, the disadvantage is that they lack the technical competence to use computers, some teachers are not computer literate. Even though some teachers are computer literate and have the competence to use computers, some schools may not have them. Lack of electricity in some schools is a major disadvantage. The challenge affects many schools in rural areas.

Another challenge that exists is that financial and technical support is inadequate in many schools. This leads to limited instructional resources being bought by the school. Hence teachers may find it challenging to plan to use a particular instructional media/technology when it is not available. Inadequate preparation of instructional media/technology to use may be a disadvantage. If a video clip is intended to be used, it requires to be previewed before the lesson starts. Failure to do so constitutes a lack of preparation which may affect lesson presentation and cause learners to miss the main objective of the lesson.

Instructional media/technology undoubtedly bridges the gap between teaching and learning and can enable the attainment of educational outcomes. The above-cited challenges cannot undo the benefits of using media and technology in teaching. The school can minimize some of these challenges by supplying the teacher with adequate resources needed to make learning aids. The teachers can be encouraged to advance themselves in ICT.

## **2.12 Effects of instructional media/technology on learners' behaviour**

The use of instructional media/technology is motivational to learners. Kala, Isaramalai and Pohthong, (2010) is of the view that the use of the internet, videos, and other visual instructional media enhances interactive learning which tends to motivate learners. Once a learner is motivated, his or her behaviour is likely to be more inclined to learn with understanding.

There are sometimes discipline challenges that are experienced in classrooms due to boredom failure to grasp the concepts being taught and inappropriate teaching methodologies. Disciplinary problems experienced can be reduced by employing a variety of instructional media/technology. Salomon (2012) states that the use of a variety of instructional media has the potential of controlling learners' behaviour since media can stimulate interest in what is being taught. Therefore teaching aids can help to control learners' behaviour in the classroom.

On the other hand over-reliance on instructional media/technology, lecture methods of teaching and note-taking can result in learners getting bored. Some pupils do not appreciate sitting all day in the classroom watching and listening to boring videos Larkin and Jorgensen (2016). This has the potential of causing disciplinary problems. Hearing information is not adequate for the majority of visually gifted learners; in fact, they need to see as well as experience, hands-on approach will assist to shape the behaviour of learners during the lesson.

According to Bandura (1977) cited by Crisp and Turner (2013, p 249) "... people are born with a repertoire of behaviour". Furthermore, Bandura's social learning theory from the same source has it that learning takes place through observation. Ferguson (2013) warn that those who watch violent video games even for a very short time are more likely to behave aggressively in the real world even though they were not aggressive, to begin with. Therefore, care must be taken not to expose learners to watching violent videos or listening to violent music lyrics. These tend to cause the development of aggressive thoughts and feelings Crisp & Turner (2013). Therefore instructional

media/technology if not selected well and used correctly they can affect learners' behaviour negatively.

The teacher can make use of pro-social video games which show the need to help others; as such learners can develop the behaviour of helping others Oswald, Jaffe & Walker (2013). Hence media can also be used to influence behaviour change in a positive way. This is supported by Ferguson (2013) who observed that juvenile delinquents who listened to and viewed violent videos become less aggressive because watching such videos allowed them to release their aggressive tendencies.

### **2.13 Summary**

It can therefore be stated that instructional media/technology are indispensable for effective teaching and learning. Teachers should not only wait to be supplied but to be resourceful. All stakeholders in education need to take part in resource mobilization to provide adequate instructional media/technology to teachers and learners. This will facilitate the development of competencies expected of learners to have. By and large, it will lead to the promotion of inclusive education through flexible accommodation of special needs among students and this will translate into economic development because education is the power that drives economic development.

In conclusion, the researcher observes that several gaps need to be researched. Their findings could not be generalized to the use of instructional media/technology in the teaching and learning process. They also did not investigate the challenges facing teachers and students in the use of instructional media/technology in basic schools. The current study, therefore, sought to fill the gaps created by the inconsistencies in the areas covered by the other scholars whose findings could not be generalized to basic schools.

## CHAPTER THREE

### METHODOLOGY

#### 3.1 Research Design

This study used both quantitative and qualitative techniques (Mixed method) in collecting and analyzing data. This method focuses on collecting, analyzing, and mixing both quantitative and qualitative data in a single study or series of the study. Its central premise is that the use of quantitative and qualitative approaches in combination provides a better understanding of research problems than either approach alone (Creswell & Plano-Clark, 2011). Quantitative involves the collection of numerical data to explain, predict, and or control phenomena of interest: data analysis was mainly statistical. The qualitative technique involves the collection of extensive narrative data to gain insights into phenomena of interest: data analysis included the coding of the data and production. It was the studying of the phenomena as they were in a natural setting (Vaismoradi, Turunen & Bondas, 2013).

In the conduct of this study, the exploratory sequential mixed method design was employed with analyses of data done through the use of descriptive survey design to collect respondents background information (Wohlin & Aurum (2015). Although, a higher premium was placed on quantitative data yet the kind of mixed method applied in this study was the embedded exploratory sequential mixed method design (Creswell & Plano-Clark, Gutmann & Hanson, 2011;2003).

Studies have shown that in an exploratory design, qualitative data is first collected and analysed, and themes are used to drive the development of a quantitative instrument to further explore the research problems (Creswell & Plano Clark, 2011; Teddlie & Tashakkori, 2006; Onwuegbuzie, Bustamante, & Nelson, 2010). As a result of this design, three stages of analyses are conducted: after the primary qualitative study is

completed, the secondary quantitative phase is carried out and born out of the findings from the qualitative phase. The two are then integrated to conclude the study in the exploratory sequential study (Creswell & Plano-Clark, 2011). The qualitative strand was administered before the quantitative strand. Creswell and Plano-Clark (2007) recommend that the inclusion of the second strand clarify procedure, processes and impacts teaching to reflect equity in the classroom. Instruments such as questionnaires on Likert Scale were used to collect data on the quantitative strand while observation and interviews were used under the qualitative strands.

Morgan (2007) opines that the decision to give priority to qualitative and quantitative approaches is difficult. Creswell et al. (2003) observed that difficulty may occur at the analysis stage where data collected and analysed could skew towards an approach which could be the result of the readers understanding and judgement about the whole process and procedure. The purpose of this design is to comprehend that a single data set is not enough as different questions that need to be answered can be obtained through different approaches (Berman, 2017). To achieve this, the researcher employed different methodologies and data collection strategies. The design chosen for the study was suitable because it helped the researcher to:

- i. Describe the type of instructional media and technology used in teaching and learning in basic schools in the Offinso Municipality.
- ii. Describe media or technology used and the challenges both teachers and students experience in the use of instructional media/ technology.

However, Creswell (2018) believes that the mixed method of qualitative and quantitative approaches is advantageous to espouse as each tends to complement the other to give a detailed description and picture of the phenomenon under study.

### 3.2 Population

The population for this study comprised all the basic schools in the Offinso Municipality in the Ashanti Region, Ghana. The Municipality was chosen because of its heterogeneous population and its geographic location in an educational environment. The target population for this study comprised 173 basic schools in Offinso Municipality. The researcher targeted all teachers, headteachers, and students in the Offinso Municipality. Currently, there are 110 public schools (including 52 junior high schools and 58 primary schools) and 63 private schools (made up of 15 JHS and 48 primary schools). While the accessible population which is also known as the study population is the population that is available for the researcher and to which the researchers can apply their conclusions. Out of 173 schools in the Municipality, eight of them (OFCE Demonstration JHS, State 'A' JHS, State 'B' JHS, State 'C' JHS, Asamankama SDA JHS, Amoawi Methodist JHS, Christian Methodist JHS, Apabame AME Zion JHS, Dominican JHS, and Immaculate JHS) were accessible with 121 teachers and 730 students.

Population in research refers to the aggregate or totality of objects or individuals regarding which inferences are to be made in a sampling study (Manna & Mete, 2021). This is a complete enumeration of all items in the population as used in a study. Thus, it is the population to which the researcher intends to generalize his/her findings (Polit & Beck, 2010). According to Asiamah, Mensah and Oteng-Abayie (2017), there are two types of populations: the target population and the accessible population. The target population is also known as the theoretical population refers to the group of individuals to which researchers are interested in generalizing the conclusions. However, Population, as used in this study, refers to the people with common features that the researcher planned to use in the study.

### 3.3 Sampling and Sampling Techniques

Sampling is the process of selecting individuals for study. A sample is any group on which information is obtained or part or section of a population (Ritchie, Lewis & Elam, 2013). The target population was 173 basic schools in the Offinso Municipality. This population was generally too large for a dissertation study. The researcher was interested in having a deeper understanding of the phenomena being studied and how teachers differed in using instructional media and technologies. The sample selected suits the purpose of the study. For this reason, Rai and Thapa (2015) describes this type of sampling procedure as purposive sampling.

The author further contends that in purposive sampling the goal is to select cases that are likely to be “information-rich” concerning the purpose of the study. In this case, therefore, the purposive sampling technique was used to select respondents (students, teachers and headteachers) from 8 schools (OFCE Demonstration JHS, State ‘A’ JHS, State ‘B’ JHS, Asamankama SDA JHS, Amoawi Methodist JHS, Christian Methodist JHS, Dominican JHS, and Immaculate JHS). This was done with the permission of the Municipal Education Directorate and the headteachers of the selected schools who agreed to allow their teachers and students to participate in the study.

According to Rai and Thapa (2015), purposive sampling is not designed to achieve population validity. The intent is to achieve an in-depth understanding of selected individuals, not to select a sample that will represent accurately a defined population. According to Bogdan & Biklen (2003), purposive sampling technique helps to ensure that the characteristics of the subjects in one’s study appear in the same proportion as they appear in the total population. Zhao (2021) observes that purposive sampling is characterized by the use of judgment and deliberate effort to obtain representative samples by including presumably typical areas or groups of the sample. According to Steketee,

Chen, Nelson, Kraat and Harden (2021), purposive sampling helps a researcher to use triangulation, flexibility, and meet multiple interests and needs. However, it is a technique that does not need underlying theories or a set number of informants.

Upon choosing the eight schools, the researcher used JHS three (3) students totaling 730 because they were better placed, had long experience in the school, and focused as they were preparing towards BECE, unlike form two (2) students who have not even completed the year one curriculum due to the Covid 19 pandemic as schools were closed down. Form one (1) students are also new, with only one month of experience in JHS education. Hence, the eight schools were chosen because of their population diversity, willingness of schools to participate in this study, and convenience.

Since some schools had about three streams of form three classes the researcher used simple random sampling to pick two streams from each school of the sample in addition to the single-stream schools totaling 14 streams in eight (8) schools. The researcher used 730 students from the selected streams as well as subject 121 teachers and the 8 headteachers of the selected streams for the study. In the case where a teacher was form master and a subject teacher in the selected stream, the researcher took the subject head or substitutes the stream.

### **3.4 Sample Size**

The sample size for the study was obtained using Yamane's (1967) sample formula which suggests that the appropriate sample size could vary for various large population sizes. The sample size for the study is calculated based on Yamane's (1967) guidelines for determining the size. Yamane posits that the sampling size can be calculated at a 95% confidence level using the formula:



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

Where n= sample size

N=number of the statistical population

e= margin of error (0.05). Thus,  $730/1+730(0.05*0.05) = 258$

$$121/1+121(0.05*0.05) = 92$$

Through substitution of the population of 730 form three students and 121 teachers from 8 selected schools, the sample size of 258 and 92 was arrived at. This is shown in table 1 below.

**Table 3.1: Sampling size**

S/N	SAMPLED SCHOOLS	SAMPLED STREAMS	AVERAGE NUMBER OF STUDENTS
1	OFCE DEMO JHS	2	121
2	STATE A JHS	2	112
3	STATE B JHS	2	103
4	MAASE R/C	2	88
5	CHRISTIAN METHODIST JHS	2	108
6	IMMACULATE JHS	2	102
7	DOMINICAN JHS	1	52
8	ASAMANKAMA SDA	1	44
	<b>TOTAL</b>	<b>14</b>	<b>730</b>

As for teachers, the researcher targeted 121 teachers' whiles 92 were arrived at and finally 8 head-teachers of the selected schools. In all a total number of 358 participants were selected for the study.

### **3.5 Research Instruments**

According to Wellington (2012), in carrying out research, a researcher should use methods that provide high accuracy, generalization, and explanatory power with minimum management demands with administrative convenience. Mwai (2015) note that: “the qualitative researcher uses multi-techniques for data collection to obtain a holistic view of the respondent”. Data was collected using three instruments namely; the questionnaire, interview guide, and observation guide. The instruments supplemented each other to close the gap which might have been left if one instrument only was used as Travers (1973) sensitised that the optimal strategy is to use a variety of instruments. This is also supported by Reiser & Dempsey (2002). The researcher was guided by the study objectives when constructing these instruments.

#### **3.5.1 Questionnaire**

The questionnaire was one of the instruments used for data collection in the study. According to Kothari (2004), some of the merits of the questionnaire are; low cost, freedom from the Interviewer's bias as answers are in respondents' own words, and that it gives respondents adequate time to give well-thought out answers. These questionnaires were divided into two categories one for the teachers and students. These questionnaires had three sections as Nkpa (1997) advises.

- i) Biographical information
- ii) Closed-ended questions weighted on a Likert scale of 1-5 with questions on Strongly Agree, Agree, Undecided, Disagree and Strongly Disagree,
- iii) Open-ended type of questions.

The questionnaires were developed to address specific objectives just as Orodho (2008) notes. This type of questions saved time, they were direct in analysis and they ensured that

the respondents had a similar range of options to choose from, thus making coding more convenient on challenges of using instructional media and technology in the teaching and learning process as they allowed respondents to choose from the available alternatives provided.

The use of this instrument was based on the assumption that reality and purpose are quite compatible and that reality is independently known and external to the knower (Li Clark & Winchester, 2010). According to Creswell (2014), post-positivists contend that researches contain universal beliefs, concepts, and ideas that can be applied to many different situations through questionnaire item administration. However, the questionnaire was intended to obtain quantitative data for the study.

### **3.5.2. Interview**

Hays (2003) states that interviews can be modified to fit the needs of the situations, they can convey empathy, build trust, collect rich data and provide a clear understanding of the respondent's view. However, the researcher chose the interview technique because it gave him an opportunity for in-depth data, ensuring high response rates and encouraging naturalness. These were for the heads of selected basic schools. In the researcher's encounter with the head-teachers, Oral Interviews were conducted with the aid of a prepared interview guide, using a mobile phone and other audio-capturing devices to capture the data for later transcription by following the advice of Cohen, Manion & Morrison (2011) to achieve the richest responses.

The researcher remains silent for respondents to expatiate as well as ask follow-up questions to gain as much detail as possible. Secondly, the researcher tried to repeat the answers to verify them. Before taking an audio recording of respondents' responses, the researcher sought their consent to adhere to ethical considerations in research. To ensure

respondents' validation of data gathered, the researcher played back the tapes to each respondent for authentication of their responses.

Twelve interview questions were explored for each respondent approximately lasting for thirty minutes and were recorded, transcribed verbatim, and checked for accuracy by respondents themselves as suggested by Silverman (2003). The researcher also engaged himself in unstructured but planned interviews in a very relaxed face-to-face encounter by conversation. Freedom and flexibility were allowed to clear doubts and teachers were made to be aware that it was for academic purposes, this was helpful and resulted in a fruitful discussion of the subject and other related matters.

### **3.5.3 Observation**

The observation was used as the instrument for data collection. Orodho (2008) states that an observation guide is a method of collecting data in which a researcher notes things or occurrences as they occur naturally. In the words of Patton (2002), observation deals with the generation of practical and theoretical truths about the human experience that are embedded in the realities of everyday existence. Also, Kawulich (2012) sensitized that observation guides record what the researcher observes during data collection. In the study, the researcher prepared an observation guide containing instructional media and technologies such as audio, visual, and audio-visual which could be used in the teaching and learning process in basic schools. The researcher then observed and recorded the available instructional media and technologies in the targeted schools as Alice (2012) acknowledges. Thus a total of ten (10) items of observation guides were used, each for every basic school selected.

This technique is very useful since it enabled the researcher to obtain first-hand information, and provides a high face value for data as information obtained appears to

measure what is supposed to (Pandey & Pandey, 2021). Meanwhile, Collins and O’cathian, (2009) argue that the observation technique is time-consuming and subject to a possible observer effect as people may change their attitudes or ways of doing things because they are being observed.

### **3.6 Pre-testing**

To ensure that the entire class of students, teachers and head-teachers was circumscribed, a pre-test was conducted. This was undertaken to determine the effectiveness of the research tools used to give the feasibility of the proposed study. The pre-test tools was carried out among the form three (3) students in two public basic schools in the Offinso Municipality, not respondents in the actual study but had similar features to the schools selected to help test the proposed study design and processes and also to determine the feasibility of the study. The schools were Ampabame AME Zion JHS and Aboasu M/A JHS which are well-established public schools as Nkpa (1997) advises the schools were not used in the main study. The purpose of the pre-test was to ascertain whether the instruments were logical and clear in other to help eliminate instruments found unclear with distorted meanings, items that were likely to elicit irrelevant or no responses and modified accordingly.

### **3.7 Trustworthiness of the Data**

In order to ensure quality of data collected in a qualitative study, a criterion for evaluating qualitative content analysis as those developed by Lincoln and Guba (1985) was used. The term used is trustworthiness. The aim of trustworthiness in a qualitative inquiry is to support the argument that the inquiry’s findings are “worth paying attention to” (Lincoln

& Guba, 1985). The standards used are credibility, validity, reliability, transferability, dependability and confirmability.

### **3.7.1 Credibility**

In ensuring credibility of this work, the researcher was privileged to have had a peer review from colleagues who read through. Also the supervisor made inputs to put the researcher on track. Credibility is said to be how a qualitative study is said to be reliable to critical readers and to be approved by the persons who provided the information gathered during the study. It is how the research findings represent a conceptual interpretation of the data gathered from the participants' original data (Lincon & Guba, 1985). Credibility according to Holloway & Wheeler (2002) and Macnee & McCabe, (2008) is defined as the confidence that can be placed in the truth of the research findings.

According to Graneheim & Lundman (2004), credibility creates whether or not the research findings represent credible information drawn from the participants' original data and may be a correct explanation of the participants' innovative. A qualitative researcher creates rigour of the inquiry by adopting the following credibility strategies: prolonged and diverse field experience, time sampling, reflexivity (field journal), triangulation, member checking, peer examination, interview technique, establishing authority of researcher and structural coherence. Qualitative research data collection necessitates the researcher's self-to immerse him or herself in the participants' world. This helped the researcher to gain an insight into the framework of the study, which reduces the distortions of information that might rises due to my presence on the field. Therefore, spending more time in the field helps improve the trust and provides a greater

understanding of participants' culture and context. Thus, prolonged engagement in the fieldwork helped me to understand the core issues that affected the quality of the data.

### **8.7.2 Validity**

Validity is the extent to which an instrument measures what is supposed to measure. That is asking the right question and framed accordingly. For the instrument to be valid the content selected and included in the questionnaire and interview must be relevant to the variable being investigated. For this study, validity refers to content validity. Validity also refers to the extent to which differences found with a measuring instrument reflect a true difference among those being tested (Kothari, 2004).

According to Collins and O'Cathian, (2009), content validity is a measure of the degree to which data collected using a particular instrument presents a specific content of a particular concept; whereas construct validity is a measure of the degree to which data obtained from an instrument accurately and meaningfully reflects a theoretical framework.

To validate the test items, the questionnaires, interview and observation guides were submitted to my supervisor for verification. Pre-testing was conducted in two public basic schools to eliminate items that were likely to elicit irrelevant or no responses. The instruments were then modified accordingly.

### **3.7.3 Reliability**

Reliability is the ability of the tools to return the same responses after repeated administration. This is concerned with the degree to which a particular measuring procedure gives a similar result over several repeated trials (Orodho, 2008). According to Best and Kahn (2000), the reliability of an instrument is the degree of consistency that an

instrument demonstrates; that is, the accuracy of the test scores which are free of choice errors. As Orodho (2008) says, the researcher uses a test-retest strategy which involves administering the instruments in one of the schools which are not be used in the final study. After waiting for two weeks the researcher re-administers the instruments.

To determine the extent to which the content instruments were consistent in eliciting the same responses, the researcher employed the Spearman rank-order correlation coefficient. A correlation coefficient of more than 0.5 and above meant that the instrument was reliable and was considered high enough to judge the reliability of the instruments used (Shah & Brown, 2020). Any inaccurate responses, inconsistencies, blank spaces, and other weaknesses noticed in the pretest were rectified. Pre-testing enabled the researcher to come up with a suitable research instrument that was well polished.

#### **3.7.4 Transferability**

Transferability is the degree to which the findings of a study could be generalised or moved to other contexts or settings. Given the small sample size, the interview guide used in this study, it may be presumed that the findings of the study may not be generalisable. Conversely, according to Ritchie and Lewis (2003) most settings and contexts do have comparable characteristics thus allowing findings to be transferred. Therefore the transferability in the study was safeguarded by selecting participants who had similar characteristics and had under gone various training as the broader population in Ghana. These characteristics which were critical to the results of the study were:

- i. the teachers used of locally available instructional media/technology
- ii. the teachers used of other types of instructional media/technology other than print resources



- iii. teachers support from headteachers, Circuit Supervisor and District trainers in the integration of instructional media/technology in teaching and learning.
- iv. teaching strategies, content of instruction in the use instructional media/technology in the teaching and learning process.

### **3.7.5 Dependability**

Dependability refers to the consistency of the research findings in another study if the same processes were to be followed. According to Ritchie and Lewis (2003) some academics would propose that this would not be possible because there is no single authenticity that could be captured and repeated. Additionally, they stated that the complexity of findings in a qualitative study does not necessarily offer itself to being replicated. However some measure of trustworthiness had been present in this study. The researcher tried to ensure that the findings were as dependable as possible through the following steps:

- i. Fieldwork was consistent with qualitative processes.
- ii. Systematic and complete analysis was carried out through two instruments namely, the participants interview guides and observational check list.
- iii. Interpretations were supported by evidence from literature.

### **3.7.6 Confirmability**

Confirmability is a measure of how well the study's findings are buttressed by the data collected (Lincoln and Guba, 1985). It is also defined as the degree to which the results could be confirmed or verified by others. Confirmability involves the approaches used to limit bias in a research; specifically, the neutrality of the data and not the researcher. Research by Mayes and Pope (1995) indicated that this neutrality is enriched when more

than one skilled qualitative researcher is involved in the process of analysis. To this effect, the researcher: Consistently checked with my field notes to ensure that reflections and meanings that he assigned to the responses were in line with what the participants said.

Besides, Marshall and Rossman (1995) and Silverman, (2000) suggested that a study's trustworthiness is enhanced when the researcher vigorously searches for proof that contradicts as well as confirms. In line with this, the researcher iterated between the literature review and data analysis to find out if the findings from the field were consistent with or contradictory to existing literature. It was established that the findings were consistent and authentic.

### **3.7.7 Triangulation**

Triangulation is a technique used to increase the credibility and validity of research findings. Triangulation, by merging theories, methods or observers in a research study, can help ensure that fundamental biases arising from the use of a single method or single observer are overcome (Noble and Heale, 2019). Confirming a phenomenon using two or more approaches greatly increases the trustworthiness of findings. The researcher therefore triangulated data from observations and interviews. This helped avoid distortions caused by relying solely on a single perspective. For example, information that teachers, heads and pupils who did not freely respond to in interviews was inferred from directly observing relevant school practices. Observation notes were compared with transcriptions of interview audiotapes.

However, it has to be borne in mind "that naturalistic criteria of trustworthiness are open ended; they can never be satisfied to such an extent that the trustworthiness of the analysis could be labeled as unassailable" (Lincoln and Guba, 1985). Unlike the

positivist researcher “who can demonstrate that he or she has controlled or confounding variables, selected a probability sample that is representative of a defined population, (and) replicated the study, the naturalist inquiry operates under an open system; no amount of member checking, triangulation, persistent observation, auditing, or whatever can ever compel; it can at best persuade” (p. 329).

### **3.8 Data collection procedures**

In any important exercise such as data collection, there is the need for the researcher to be circumspect in the selection of the caliber of personalities to be consulted if a reliable data is to be accrued. The researcher was thoughtful and prudent to start with consultations. Permissions were sought from the Municipal Directorate of Education, the headteachers of the various selected schools and the teachers involved. After that the researcher went on to introduce himself to the headteachers of the selected schools. The headteacher introduced the researcher to the teachers who were responsible for the various classes and informed them about the purpose of the research. The research instruments that were used for the study were interview schedule, lesson observation schedule and questionnaire. Once permission was granted, this was followed by clear explanation of the rationale for the study so as to enhance further clarification of the items and then administered the questionnaire, interview guide and observation guide.

The design of the questionnaire was based on the research objectives and subjected to further screening by the supervisor. The questionnaire was prepared to obtain data from 258 students and 92 teachers on the utilisation and challenges of instructional media/technology in the teaching and learning process and was subdivided into two sections ‘A’, ‘B’ ‘C’ and ‘D’ in accordance with the research objectives. Section ‘A’ which was on demographic information of respondents sought to establish the sex, age,

qualification, and years of experience in the areas of teaching of the teachers. The 'B' detailed on the availability and use of instructional media/technology. The 'C' was on the factors that influence interactivity and use of instructional technologies while the 'D' focused on the challenges faced in the use of instructional media/technology with each of the sections containing at least four items using the Likert scale.

The questionnaire was intended to obtain quantitative data for the study. The use of this instrument was based on the assumption that reality and purpose are quite compatible (Miles & Huberman, 1994), and that reality is independently known and external to the knower (Guba, 1990). According to Creswell (2014), post-positivists contend that researches contain universal beliefs, concepts and ideas that can be applied to many different situations through questionnaire item administration.

The researcher used interview guide to gather information on the topic since it was the most commonly used instrument for data gathering in qualitative research. The interview guide gives in-depth understanding on the behaviour of children in music-making activities. The research was conducted within eight weeks where the researcher was given time to observe classroom situations. Data collection began on the 8<sup>th</sup> February, 2021 and ended on 5<sup>th</sup> April, 2021 in the study area. The researcher began the process on the first day with self-introduction to build a rapport and to explain the purpose of the research to the participants, thus the purpose of the study, benefits of the study, and the utilisation of instructional media/technology and the challenges faced by both students and teachers in the teaching and learning process.

To make the data authentic on the utilisation of instructional media/technology and the challenges faced by both students and teachers in the teaching and learning process, eight basic schools were used. One-on-one interview was organised to collect background information from the headteachers of the eight selected schools. The reason was to

gather information on how teachers integrate instructional media/technology in the teaching and learning processes and the challenges they faced. The interview was conducted in (English and Asante Twi) a common language that every participant was comfortable with within the school premises during their break periods and some immediately after closing. The researcher asked the questions and the participants provided answers. The interviews were video-taped and later transcribed.

Observations were also carried out to gather more information on the effective and efficient utilisation of instructional media/technology and the challenges faced by both teachers and students during the teaching and learning process. Here, the researcher sat in the classrooms to observe twelve (12) lessons in different subjects areas such as English, mathematics, Information and Communication Technology, Social studies and Religious and Moral Education, Basic Design and Technology, Twi. Teachers were observed on how they use media/technology, the type of media/technology as well as the challenges faced in using media/technology during the teaching and learning process. All observation lessons lasted for two hours at each school. Members to be observed were based solely on voluntarism, and the individuals who agreed to be observed during their teaching were selected for the observation data. The observations were made in the classrooms and during break without interrupting teaching and learning activities whiles interviews with the headteachers were conducted during their break periods and some immediately after closing.

### **3.9 Data Analysis**

The study was a descriptive survey. Data were analyzed using the SPSS program. The analysis was systematically done as per the objectives of the study. Quantitative data collected using questionnaires for the students and teachers were processed by coding the

closed-ended questions and entering the data into the computer to run descriptive analysis including frequencies, percentages, and graphs. In the case of open-ended questions in the questionnaires and data collected from the interview guide for headteachers. The data collected from the teachers and students were categorized, themes established, coded, and entered into the computer and analyzed descriptively as well as the data collected from the headteachers. After the descriptive analysis, the researcher reported and discussed the findings using charts and tables. Finally, the summary, conclusion, and recommendations of the study were done as shown in chapter 4 and 5.

### **3.10 Ethical Issues**

Ethics has to do with fulfilling obligations to the research participants such as informed consent, freedom from coercion, and ensuring confidentiality. According to Artal and Rubinfeld (2017), the researcher has the utmost responsibility to see that ethical principles are followed. Having this in mind, the researcher sought the permission of participants before starting the exercise and gave enough clarification to participants to allow them to decide whether to participate in research or not.

## CHAPTER FOUR

### DATA PRESENTATION AND ANALYSIS

#### 4.0 Introduction

The purpose of this study was to investigate the effectiveness and challenges faced by teachers and students in the use of instructional media and technologies (IMT) in teaching and learning process in selected basic schools in the Offinso Municipality in the Ashanti Region of Ghana. Generally, the study was to:

- i Investigate the type of instructional media and technologies used in the teaching and learning processes.
- ii Examine some factors that influence the interactivity and effective use of instructional media and technologies in the teaching and learning processes.
- iii Investigate the preparedness of teachers on how they successfully use instructional media and technologies in the teaching and learning processes.
- iv Identify some of the challenges teachers and students face in coping with the use of various instructional media and technologies in the teaching and learning processes.

#### 4.1 Results of Teachers Lesson Observation

A total of twelve (12) teachers from the selected Basic Schools in the Offinso Municipality volunteered for their lessons to be observed. The teachers involved in the observation were coded Tr. 1, Tr. 2, Tr. 3, Tr. 4, Tr.5 up to Tr. 12. The Tr. means teacher. Areas of interest that were observed included how teachers effectively and efficiently use instructional media/technology in the teaching and learning processes. Under this, how teachers acquire, judge the quality, and select appropriate instructional media/technology were observed.

Again, how teachers integrate instructional media/technology in the teaching and learning processes were also observed. The interest was to identify the types of available instructional media/technology and the challenges faced by both teachers and students during the teaching and learning process. The results were thematically analysed.

#### **4.1.1 Results of Teachers Lesson Observation and Availability of instructional media/technology**

The chalkboard and Textbooks are by all account not the only wellspring of instructional media/technology that teachers regularly use in their classrooms. Teachers in the selected schools were observed on how they acquire, judge the quality, and select appropriate instructional media/technology to facilitate teaching and learning. Tr.1, Tr.2, Tr. 3, Tr. 5, Tr. 6, Tr. 10 and Tr. 11 clarified that they use media/technologies that they have sourced themselves to help support the required textbooks to facilitate the teaching and learning processes.

The information obtained from the teachers observed with regards to the provision and supply of instructional media indicated that teachers are not always supplied or provided with the required teaching aids such as computers, projectors and television sets. These are the necessary electronic devices significant to be used in the modern classroom.

Three lessons by Tr 3, Tr 4 and Tr 9 evidenced that they are always supplied with instructional media/technology which indicates that there is a deliberate attempt in planning and budgeting in some schools to acquire teaching and learning resources. This is a realisation that any method of teaching employed by teachers' requires the support of teaching and learning aids to support learners' academic needs.

Also, responses from the interviewees indicated that the schools provide teaching aids to help teachers facilitate teaching and learning. On the occasion where some schools do



not have resources available to use, teachers and learners source for themselves what to use from the local environment. For example, one participant commented:

My teachers and students rate the importance of instructional media to the extent that they work together to ensure that several instructional media/technologies are always available to support the teaching and learning process. In short, they look for their teaching and learning aids to use in their classrooms as they sometimes improvise. (Interview with HT. C, 2021).

In relative to the question about whether teachers teach all lessons with instructional media/technologies, it was observed that teachers don't teach all lessons with media/technology due to unavailability of resources to support teaching and learning.

This was also shared by another headteacher:

We normally don't teach all lessons with media/technology due to the lack of learning resources, scarcity of financial resources as well as the time needed to go around fetching learning aids. (Interview with HT. A, 2021).

Unfortunately, such lessons were teacher-centred which made the learners not very active during the teaching and learning process. It is a key that learning by doing enables students to understand concepts so easily, remember and be able to recall whatever they learn. Hence, teachers must always select appropriate methodologies that integrate media/technologies to ensure that students actively participate in the teaching and learning process to ensure effective and efficient interaction.

Regardless of the quality of the instructional media/technologies selected, it was observed that one fundamental measure is that the instructional media/technology selected should adjust to the subject or the curriculum. This was evident during the

presentation by Tr.1, Tr.2, Tr. 4, Tr. 5, Tr. 6, Tr. 7, Tr. 9, Tr.10 and Tr. 11. However, Tr. 3, Tr.8, and Tr.12 also announced that they always review any materials they come across either alone or in groups and once they are in line with the curriculum they consider different rules, like accuracy, visual allure, usability and its potential for student's involvement.

It was observed that some instructional media/technology “just showed up,” with no explanation, documentation or support, and those teachers had never used such materials for lesson presentation. This was evident during the presentation by Tr.2, Tr. 4, Tr. 5, Tr. 7 and Tr. 12. Also, Tr.2, Tr. 4, Tr. 5 and Tr. 7 had difficulties deciding whether instructional media/technologies available were suitable for their lessons as well as their students.

Furthermore, it was observed that effective and efficient use of appropriate media/technology requires enough skills, knowledge and experience. From the interview, many headteachers had a clear sense of why inadequate skills and knowledge in the use of media/technology. This was what some of the participants had to say:

We receive no or limited guidance or training from nowhere as to how to select, design and use appropriate media/technology to support lesson presentation. The guidance or experience that we had is from other teachers who sometimes share their experiences that they had acquired.

(Interview with HT. A, B, C, D, E, F and H, 2021)

## 4.1.2 Types of instructional media/technology in selected schools

The following are types of instructional media found in the selected schools, these are; wall charts, textbooks, chalkboards, models and computers.

### 4.1.2.1 Wall Charts

Each classroom observed during the observation was having wall charts pasted on the walls indicating specific topics in specific subjects being taught in schools such as English, Mathematics, Integrated Science, RME, ICT etc. Eighty percent (80%) of the observed classrooms had this plan. A few charts were hung with strings on the rafters reachable for the students to understand them. Forty percent (40%) of the classroom had this course of action which introduced a beautiful impact to the homeroom climate. The text dimension noticed was sufficiently huge to be seen from afar which made it simple for students to read and understand them. An aggregate of 97 charts was seen, 82 were genuinely new and in good condition, while 15 were torn and over-utilized. Even though most of the charts were prepared or designed by teachers some were given by NGO's, Old students and other stakeholders of education. The photos beneath show the kinds of wall charts observed.

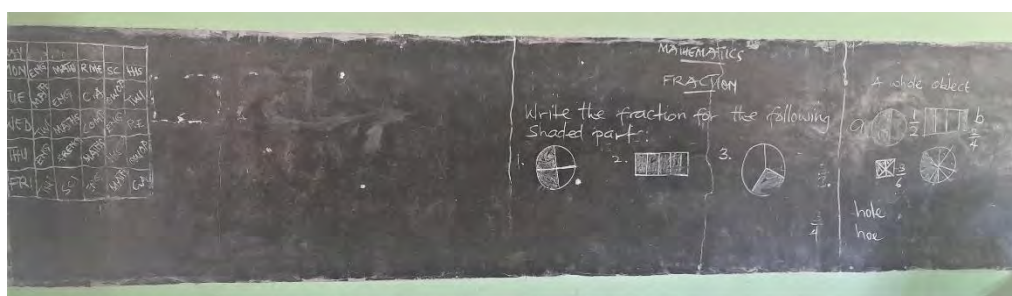
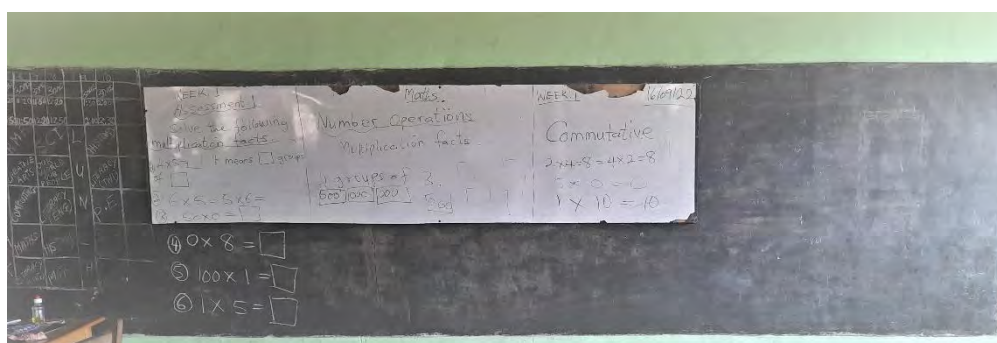


#### 4.1.2.2 Chalkboard

A chalkboard is a reusable composing surface on which text or drawings are made with chalk. They were made of concrete and fixed with the goal that students could see on the board.

The chalkboard is one of the generally instructional media utilized in Ghanaian schools. Practically 100% of the classrooms observed had chalkboards painted black and some green where teachers could compose activities and words which students could peruse without hardships.

Although the surfaces of chalkboards were painted every one of them should be repainted. A few segments of the chalkboards were scratched requiring a fix. Scratches on the compromised displaying great penmanship by certain teachers and contrarily impacted a few students' capacities to notice and compose intelligibly in their activity books. This was confirmed by exercises students composed as finishing up the action where they couldn't see unmistakably a few letters composed on the blackboard. There is a need for the chalkboards to be revamped and repainted.



#### **4.1.2.3 Textbooks**

Textbooks found in schools were mainly in the following subjects; English, Mathematics, Integrated Science, Religious and Moral Education. Other subjects such as ICT, Basic Design and Technology, Social Studies and Ghanaian language have no textbooks at all. About 30% of schools had textbooks kept in the school cabinet in the classrooms whilst 70% had their textbooks kept in the head teacher's office due to lack of enough rooms to serve as resource rooms and lack of security in the classrooms. However, in most cases, the students had access to textbooks to read if planned by the teacher as instructional media for a particular subject or topic. The textbooks seen were in good condition and indicated that there was a deliberate policy on the upkeep of textbooks as most of them were covered in plastic covers. Most of the participants commented;

The Education Directorate provides textbooks to the schools while some of the parents also acquired some for their wards whenever the need arises. (Interview with HT. A, B, D, E and F, 2021)

However, there were not enough textbooks considering the large sizes of classes observed. Hence, learners have to share in some cases in the ratio of one book per four pupils.

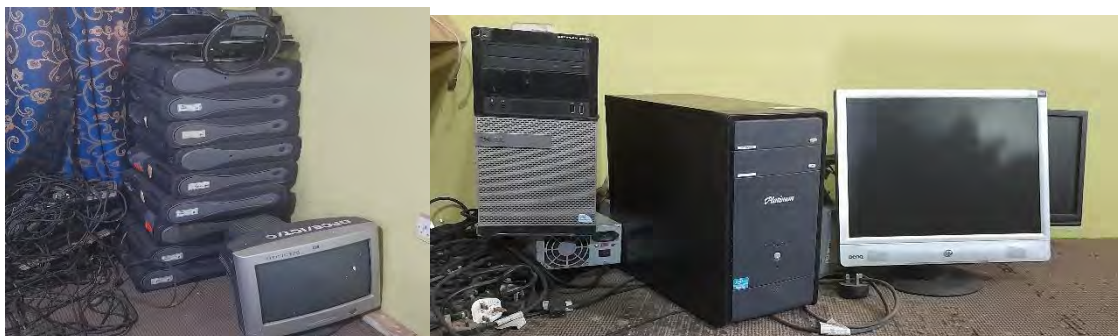
#### **4.1.2.4 Computers**

Each school selected for the study was having at least five (5) computers which include laptops and desktop computers. In all forty-eight (48) computers were discovered in all the selected schools. Out of the forty-eight (48) computers, four only (4) were functioning properly while the remaining malfunctioned. Based on the observations,

interviews and questionnaires administered, the findings indicated that these computers were not used for lesson presentation purposes but rather sometimes for administrative purposes while most of them lay idle in the offices and others even kept outside the school premises based on the fact that

- 40% of schools had electrical issues as evidenced by 80% interviewed headteachers.
- 92% of observed teachers are not competent in using the computers and never received training in computer skills during their training courses.
- 94% of the schools have no adequate security measures.

Therefore, there is a wide gap as far as competency in computer skills that can be addressed in the Ghanaian schools is concerned since students are not well exposed to computer education. With exception of Christian Methodist, Immaculate and Dominican all the remaining schools have no computer rooms even though they have few computers. The ICT goal to introduce the student to computer-based information systems, their applications, suggestions and issues encompassing surrounding their use cannot be achieved in these schools. Therefore students lack computer skills since teachers lack the background information on the utilisation of computers and the general technology/computer literacy requirement to use computers in their teaching to motivate their students to develop the requisite ICT and 21st Century skills and understanding (Ministry of Education, 2018).



### 4.1.3 The School Environment

The school environment was used as an instructional resource depot. Both teachers and students mostly move around the environment gathering teaching and learning resources such as parts of trees, soil, shells of animals, insects, and flowers among others to be used in lesson presentations.

Most of the locally available man-made materials were also found from the local environment such as cooking oil containers, plastic bottles, empty tins and others that could be used in teaching topics such as measurement and volume in Mathematics.

The use of a local environment as an instructional resource laboratory supports child centre teaching methods in which learners use multiple senses during learning such as feeling with hands, seeing with eyes, listening to mention but a few.

The utilization of an environment as an educational resource centre upholds a learner-centred method of teaching where students utilize numerous senses during learning to motivate students to investigate what they are generally inquisitive about, encouraging an anomaly that will stay with them forever.

4.1.4 When to use instructional media/technologies

Based on the lessons observed, it was realised that instructional media/technology can be integrated into any lesson to help facilitate students understanding of the subject matter taught. The type of media/technology used must be relevant, appropriate and dependent on a specific subject or lesson based on the selected method of teaching. One significant aspect of teaching is to gain learners attention which is related to the effective and efficient use of instructional media/technology. The utilization of instructional media/technology in the teaching and learning processes helped in assisting the teachers in clarifying new concepts which resulted in a better understudy comprehension of the ideas being instructed.

In the event where teachers used multiple methods or approaches, they used a variety of media/technology to match the selected teaching methods or approaches.

It was realised that good teaching resources, in general, can never replace the teacher but rather the teacher uses them to achieve and enhance the teaching and learning objectives.

Instructional media/technology was fundamental since they helped both the teachers and students stay away from an overemphasis on recitation and rote learning that can certainly dominate the teaching and learning processes.

In all, the use of media/technology permits students to have pragmatic encounters which assist them with creating abilities and ideas and to work in an assortment of ways.

However, the use of instructional media/technology can be applied at every stage (Introduction, development and Conclusion) of the lesson as far as it is appropriate, relevant and communicates vital information about the lesson which students should know.



#### **4.1.5 Analysis of instructional media/technologies used in observing lesson**

##### **(Appropriateness)**

Lesson observations were done in different subject areas such as English language, mathematics, integrated Science and ICT. In most of the lessons, textbooks and charts were mostly used and there was a high frequency of the use of a chalkboard. The table below provides an analysis of the media/technology used during teaching and learning processes.



**Table 4.1: Lessons Observed and the type of Media/Technology Used**

<b>Subject</b>	English	Maths	Int. Sci	ICT	RME	BDT	Twi
<b>Media used</b>							
Chalkboard	✓	✓	✓	✓	✓	✓	✓
Charts	✓		✓	✓	✓	✓	
Word cards		✓	✓	✓	✓	✓	
Textbooks	✓	✓	✓		✓		
Real objects		✓				✓	✓
Maps and Diagrams		✓				✓	

Table 4.1 revealed that the chalkboard was used in the majority of lessons. Other teaching and learning media frequently used were due to their availability. The use of real objects indicates that teachers are very resourceful and make use of the available local materials to support the other teaching and learning aids the educational stakeholders fail to supply.

Moreover, the majority of teachers and headteachers observed and interviewed indicated that they factor inappropriateness and availability of the media/technology to be utilised related to a particular teaching methodology. This was evident during the presentation by Tr.2, Tr. 3, Tr. 4, Tr. 5, Tr. 6, Tr. 8, Tr. 10 and Tr. 11 that if media/technology can be used to accompany a particular teaching methodology to facilitates the achievement of the learning objectives then it is considered to be appropriate. They however considered the appropriateness of media to be used with the subject, topic and teaching method while Tr.1, Tr. 7, Tr. 9 and Tr. 12 did not consider the appropriateness of media, this was rather unfortunate based on the fact that the inappropriate use of media/technology is likely not to help students to assimilate the information being put across and may make it difficult to accomplish the lesson objectives.

Basically, all the interviewees were of the view that;

The appropriateness of media is vital to help achieve the lesson objectives and they easily help to provide learners with their academic needs. (Interview HT C, D, F and G, 2021)

However, exposing students to different kinds of media/technology will encourage students to learn more effectively and do remember whatever is learnt.

#### **4.1.6 Teachers lessons observed**

The following were the evidence in the lessons observed

1. Teachers frequently make use of the chalkboard as well as textbooks and chats to facilitate the teaching and learning processes. The use of the chalkboard by the teacher enabled the writing of key teaching points and summarising major teaching points of the lesson. The chalkboard work in the majority of cases was well organised, clearly written and gave excellent guidelines to learners on how to write exercises given with the intention of summarising the lesson.
2. The schools sometimes provide learning aids to help teachers facilitate the teaching and learning processes. On the occasion where some schools do not have resources available to use, teachers and students source for themselves locally available materials from the environment.
3. Teachers do not teach all lessons with instructional media/technology due to lack and scarcity of financial and learning resources as well as the time needed to go around fetching learning aids. Unfortunately, such lessons were teacher-centred which made the learners not very active during the teaching and learning process
4. Teachers used various approaches and techniques to integrate instructional media/technology in their lessons presentations. However, in a lot of instances,

- teachers used only printed media/technologies such as textbooks, charts and diagrams to ensure the students' active participation in lessons in the classroom.
5. The use of instructional media stimulates learners' interest and sustains their attention. The fact teachers used a particular type of instructional media/technology is a strong indicator that they aimed at stimulating interest and guaranteeing that students stay attentive throughout the lesson. The teacher's sense of concern for the academic requirements of the students prompts the utilization of media in their picked educating techniques.
  6. Effective and efficient use of appropriate media/technology requires enough skill, knowledge and experience. Teachers from the selected schools have received no training or limited training or guidance from nowhere in regards to how to prepare, design and use appropriate instructional media/technology in the teaching and learning processes.
  7. The choice of selected instructional media/technology to be used is determined by the availability of the media/technology in the schools
  8. The teachers have or little knowledge on how to use electronic media/technology to support the teaching and learning processes. Teachers' lack competence in using resources such as computers, PowerPoint.

#### **4.2 Presentation and Interpretation of Data from the Field**

Responses of students and teachers to the questionnaires distributed and headteachers interviews are presented and interpreted as follows:

#### **4.2.1 Demographic information of respondents**

This aspect deals with both students and teachers' sex and age distribution. Teachers' highest academic qualification as well as the number of years of teaching. The impulse of this was to ascertain how the respondents' sex influence the use of instructional media and technologies in the teaching and learning processes, their maturity levels in terms of age in handling various instructional media and technologies, whether they possess the right qualifications in the teaching profession and their experience and understanding as far as teaching and learning are concerned.

##### **4.2.1.1 Sex distribution of basic school teachers and students respondents.**

This section describes the sex distribution of both teachers and students who answered the questionnaires. This was intended to find out whether the sex of the respondents would have any impact on the use of instructional media and technologies. Table 4.1 below shows that out of 92 teachers and 252 students, fifty-four teachers (57.61%) of the respondents forming the majority of the teachers' population were males and thirty-nine (42.39%) of their counterparts forming the minority of the teacher respondents were females. Again, it is clear from table 4.2 that, 139 (55.16%) of the students' respondents were male and 113 (44.84%) female student respondents. This is an indication that the majority of both teachers and students respondents in the selected basic schools in the Offinso Municipality were males. The sex of respondents was very important for the study as this would ensure gender balance and also fathom how the sex of teachers could influence the data collection and responses thereof.

**Table 4.2: Sex distribution of both teachers and students respondents**

Repondents	Male	%	Female	%
Teachers	53	57.61	39	42.39
Students	139	55.16	113	44.84

#### 4.2.1.2 Age distribution of teachers and students who responded to the questionnaire

This was intended to find out the ages of both teachers and students and their level of understanding of the use of instructional media and technologies in the teaching and learning process. Their encounter with instructional media and technologies and how they have been dealing with these technologies in the classrooms.

**Table 4.3: Teachers Age Distribution**

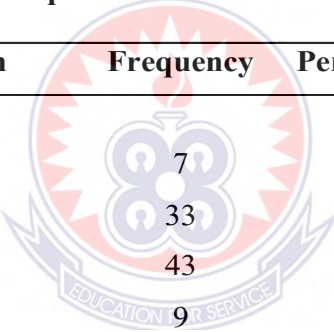
Teachers	Frequency	Percentage
20-30	14	15.22
31-40	23	25
41-50	36	39.13
50+	19	20.65

Table 4.3 indicates that 14 (15.22%) aged from 20 – 30yrs, 23 (25.0%) aged within the range of 31 – 40yrs, 36 (39.13%) aged within the range of 41 – 50yrs and 19 (20.65%) of the respondents were above 50 years of age. It can easily be seen from the table that the majority of the respondents were within the age bracket of 31 – 50yrs which was approximated to 59% of the entire respondents.

#### 4.2.1.3 Highest qualifications of teachers who responded to the questionnaire

Teachers in Basic schools in Ghana are expected to have a minimum qualification of diploma to teach in the various basic schools. The study sought to know whether teachers possess the minimum qualification required. The belief was that having the right qualification would motivate and build teachers the confidence to be effective and proficient in their work as teachers. The data indicate that majority of the respondents 85 (92.%) approximate 92% have at least a Diploma or above which is the basic requirement for teaching in the basic. The data further show that there are still teachers with Certificate 'A' which represent 7 (7.6%) approximate 8%.

**Table 4.4: Teachers' academic qualifications**



Qualification	Frequency	Percentage
A '3' Year Certification	7	7.6
Diploma	33	35.9
Bachelors Degree	43	46.7
Masters	9	9.8
<b>Total</b>	<b>92</b>	<b>100</b>

N/B: Percentages are based on the number of responses given

**Source: Field Work 2021**

From **table 4.4**, out of 92 respondents; 7 (7.6) were Certificate 'A' holders, 33 (35.9%) were diploma holders, 43 (46.7%) were Bachelors degree holders and 9 (9.8%) were masters degree holders.

#### 4.2.1.4 Teachers years of teaching in their various Basic Schools

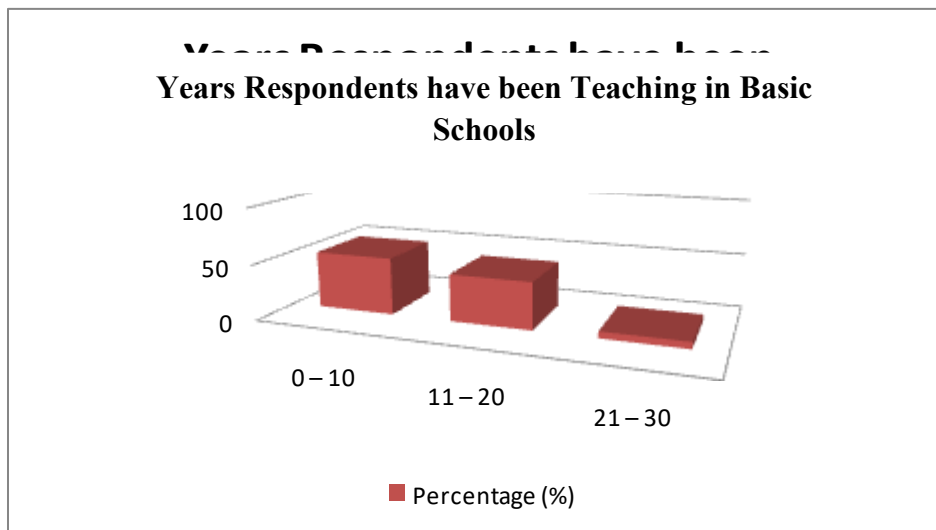
This was intended to find out the teachers years of teaching in the various basic schools and their experience gained as well as their level of understanding of the use of instructional media and technologies in the teaching and learning process.

**Table 4.5: Years Respondents have been teaching in the Basic School**

Years of Teaching	Frequency	Percentage (%)
0 – 10	22	23.9
11 – 20	58	46.1
21 – 30	12	13.0

**Source: Fieldwork 2021**

Table 4.5 reveals that 22 (23.9%) approximately 24% of teachers in the selected basic school who responded to the questionnaire have been teaching in the schools for about 10 years while 58(46.1%) have been teaching in basic schools between 0 - 10 years. Interestingly, 12 (13.0%) of the respondents have been in their schools 11 - 20 years. This implies that the majority of the teachers have over ten years of teaching experience in dealing with instructional media and technologies in the basic school and the classrooms. Thus, teachers would have firm knowledge about the effective use of instructional media and technologies and the challenges faced by both teachers and students in the teaching and learning process. It was important then to consider this element as appropriate for those who participated in the study. Figure 4.1 further depicts the number of years respondents have been teaching in the basic schools within the Offinso Municipality.

**Figure 4.1: Number of years respondents have been teaching in the basic schools**

#### **4.2.2 Research Question One: What type of instructional media and technologies are used in the teaching and learning process?**

The study was to investigate the type of instructional media and technologies used in the teaching and learning processes. Under this research question, questionnaires were developed for teachers and students to indicate whether some listed instructional media and technologies were readily available in their schools for teaching and learning. Table 4.6 indicates teachers' and students responses as follows:



**Table 4.6 Availability of instructional media and technologies**

Response	YES		NO	
	Frequency	Percentage	Frequency	Percentage
Text books	84	91	8	9
Journals	3	3	89	97
Magazines	20	22	72	78
Pamphlets	34	37	58	63
Chalkboard	92	100	0	0
Computers	38	41	54	59
PowerPoint	6	7	86	93
Slides	4	4	88	96
Video	23	25	69	75
Charts	81	88	11	12
Globes	39	42	53	58
Models	41	45	51	55
Cartoons	4	4	88	96

Source: Filed Work 2021

Source: Field work 2021

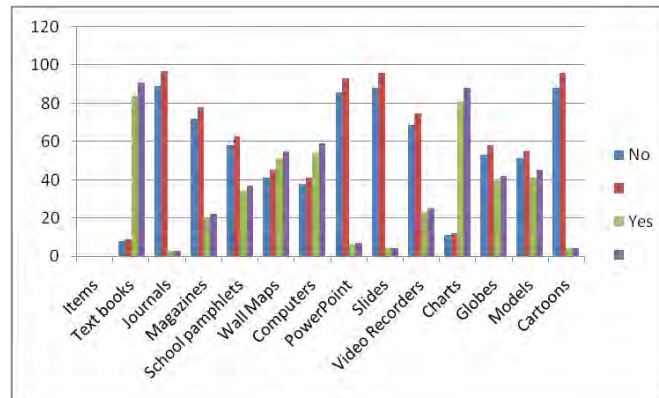
From the above table 4.6, out of 92 respondents, 84(91%) reported that textbooks were available while 8 (9%) indicated that there were no textbooks available. On availability of journals, 3 (3%) indicated that journals were available while 89 (97%) indicated non-availability. Twenty (22 %) revealed that there were some magazines available while 72(78%) asserted that there were no available magazines. On whether school pamphlets were available in schools, 34 (37%) indicated that they were available while 58 (63%) indicated non-availability. Also, all of the teachers were of the view that they have chalkboards in their various classrooms which serves as the most commonly used media. The above indicates that teachers mainly make use of books assigned to the class, laboratory equipment and other print media to support teaching and learning although they

do appreciate the role played by the use of instructional media and technologies in teaching and learning processes (Omariba et al, 2015). This also concurs with a study conducted by Muvango, Indoshi and Okwara (2019) that teachers indicated the availability of instructional media for use but they were not regularly used during teaching and learning. Hence the most available non-textual media found in schools were the chalkboard, resource persons and various types of charts with no videotapes, films or computer-mediated materials to support teaching and learning.

On availability and usage of computers, thirty-eight (41%) indicated the availability of computers while fifty-four (59%) stressed non-availability of instructional media and technologies, six (7%) reported that they normally use PowerPoint while eighty-six (93%) reported that they do not use PowerPoint due to non-availability, four (4%) reported availability of slides while eighty-eight (96%) reported non-availability of slides, twenty-three (25%) reported availability of videos while sixty-nine (75%) reported non-availability of videos, eighty-one (88%) reported the availability of charts while eleven (12%) reported non-availability of charts, thirty-nine (42%) reported availability of globes while fifty-three (58%) reported non-availability of globes, forty-one (45%) reported availability of models while fifty-one (55%) reported non-availability of models and four (4%) reported availability of cartoons while eighty-eight (96%) reported non-availability of cartoons.

It could be inferred from the study that, among the instructional media and technologies identified, except for textbooks, wall maps, and charts all the other media were not readily available according to the respondents. This conforms with an earlier study conducted by Osei and Mensah (2018) which found out that instructional media and technologies for teaching and learning of various subjects are not available or sufficient enough for teaching and learning.

**Figure 4.2 Graphical Representation of Teachers' responses on the availability of instructional media and technologies**



Students questionnaire also revealed that 191 (74%) out of 258 students were not issued with all the required textbooks whilst 67 (26 %) indicated that they were issued with all the expected textbooks. The results however show that the most commonly available materials in the various schools were textbooks but inadequate or insufficient to be used. Hence, teachers hardly use instructional media and technologies available during teaching and learning and should make provision for varieties of instructional media and technologies that can be used to facilitate teaching and learning.

Furthermore, the student questionnaire sought to find out the reasons why students were not issued with all the required textbooks. The respondents gave various responses. Table 4.7 illustrates the students' responses.

**Table 4.7 Reasons why students were not issued with textbooks**

<b>Responses</b>	<b>Frequency</b>	<b>Percentage</b>
Schools do not issue parents buy	86	33.3
Too many students /Inadequate	64	24.8
Lack of funds for buying textbooks	50	19.4
No library in the school	36	14.0
GES does not provide textbooks	14	5.4
Others	8	3.1

N/B: Percentages are based on the number of responses per each item

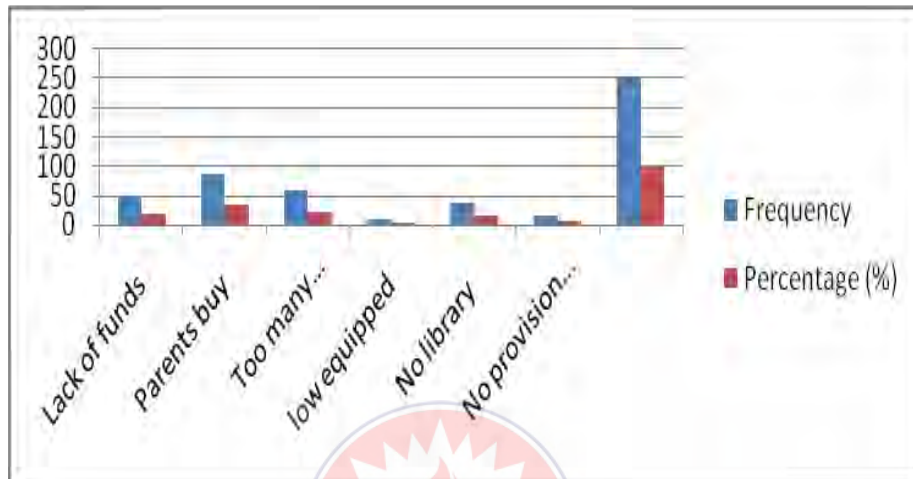
**Source: Field work 2021**

From table 4.7, out of 258 respondents, the majority of the students 86 (33.3%) depended on their parents to buy for them the various required textbooks for teaching and learning. Sixty-four students (24.8%) indicated that there were many students (over enrolment) in the classrooms for that matter textbooks are insufficient or not enough to be used by all the students. It was also revealed by fifty students (19.4%) that the school lack funds for buying enough textbooks while 36 (14.0%) said there was no library at all in the school, fourteen (5.4%) respondents indicated that the Ghana Education Service does not provide textbooks nowadays in order to equip the school libraries and resource centres to help facilitate the teaching and learning processes in the various schools in the municipality. Moreover, others 8 (3.1) also indicated that the schools' libraries were not equipped, textbooks were not issued by management due to the fear of the books getting lost, some schools issued few copies but the percentages were minimal. Therefore, both teachers and the head-teachers confirmed the availability of instructional media and technologies in all sampled schools with printed instructional media and technologies and chalkboard

dominating. This however confirms that table 4.1 revealed that textbooks were the most available material in all the sampled schools.

Figure 4.3 further emphasizes the distribution of students' responses on reasons why they were not issued with textbooks.

**Figure 4.3 Reasons why students were not issued with textbooks**



It is important to integrate instructional media and technologies into teaching and learning since they make instructions concrete, lively, understandable and pave way for students active participation and involvement since they help students to make meaning, construct knowledge and develop significant concepts and aid teachers to deliver instructions within a stipulated time frame which leads to efficient and effective teaching and learning and this idea is supported by Nwike and Catherine (2013) that students learn and do better when they are taught with instructional materials.

Using instructional media and technologies allows the students to view, feel, listen and touch the material during teaching, which helps to arouse the students' attention and interest in the teaching and learning processes. It also includes the recognition of specific facts and concepts that help to develop the abilities and skills of the learners (Bulduk, 2016; Umutlu, 2017).

However, in as much as the use of instructional media and technologies is crucial, the findings of this study discovered that the available instructional media and technologies were inadequate. This was also shared by Ogbu (2015) in similar research conducted that there are inadequate instructional media and technologies in Nigeria. Kerubu (2015) also in a survey study on the availability of instructional resources in Kenya got similar results. This result is congruent to the study of Osei and Mensah (2018), who indicated that inadequate and inappropriate teaching and learning materials affect the academic performance of students in a school.

Hence, there is a clear indication that materials or resources for teaching and learning available are not sufficient enough for teaching and learning as indicated by the respondents. From this, teachers should make provision for enough instructional media and technologies in the school in order to ignite the academic intelligence of the pupils in the school.

The findings correspond with studies done in other parts of Ghana such as Okyere, Tawiah, Lamptey, Oduro & Thompson (2017) study revealed that despite the availability of different resources, only textbooks, chalkboards and handouts were widely used in the teaching and learning environment since most teachers were not up to date with the integration of technology in teaching and learning.

It was revealed during data collection that most of the Ghanaian schools continue to wallow in demand for instructional media and technologies. Hence, the availability and utilization of instructional media generally indicate that our Ghanaian schools have scarce instructional media and technologies whose utilization is wanting.

#### **4.2.3 Research Question 2: What factors influence the interactivity and effective use of instructional media and technologies?**

This research question sought to find out the factors that influence interactivity and effective use of instructional media and technologies in teaching and learning processes. It is clear that for teaching and learning to be more effective, efficient and meaningful, the use of instructional media and technologies was inescapable. The instructional media and technologies also help to determine the instructional method to be employed by the teacher in the teaching and learning process and also bring variations in his or her lesson presentations. Since the researcher was to examine the factors that influence effective use; he needed to find out first, the availability of the instructional media and technologies in the sampled schools and how often they are used to support teaching and learning. Apart from that, the researcher was to find out whether the instructional media and technologies (Printed, Display and ICT) used for lessons in other countries in the world were available in Ghana and how often they are used in our Ghanaian classrooms. This was with good intentions to find whether teachers and students in the country benefited from teaching in the same way as those in the other parts of the country and the world at large. An item in the teachers' questionnaire asked how often specific instructional media and technologies were used in the teaching and learning process. **Table 4.8** shows teachers' responses on how often teachers used instructional media and technologies.

**Table 4.8 How often teachers used instructional media and technologies**

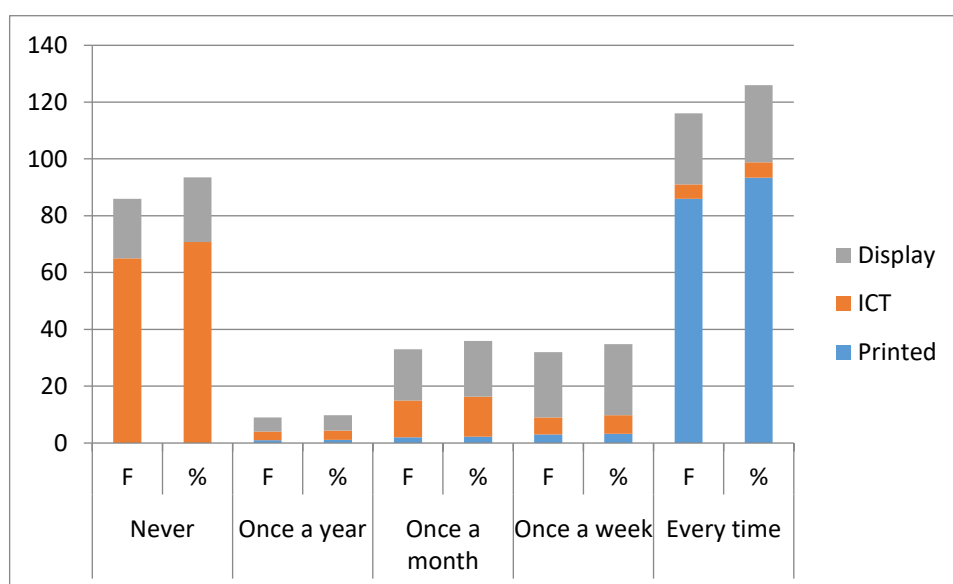
	Never		Once a year		Once a month		Once a week		Every time	
	F	%	F	%	F	%	F	%	F	%
Printed	0	0	1	1.1	2	2.2	3	3.3	86	93.4
ICT	65	70.7	3	3.3	13	14.1	6	6.5	5	5.4
Display	21	22.8	5	5.4	18	19.6	23	25	25	27.2

*N/B: Percentages were based on the number of responses per item*

**Source: Field work 2021**

According to this objective, table 4.8 shows that out of 92 respondents; eighty-six(93.4%) of the teachers reported that they always use printed instructional media and technologies every time in their lesson presentations whereas other percentages were insignificant. Sixty-five (70.7%) of the teachers also indicated that they never or hardly used ICT instructional media and technologies whereas 13 (14.1%) of the teachers reported that they used ICT instructional media and technologies once a month; other percentages were insignificant. On the issue of display instructional media and technologies, twenty-five (27.2%) of the teachers indicated that they used them every time while twenty-three (25%) reported that they used them once a week, eighteen (19.6%)once a month and finally twenty-one (22.8%) of the teachers reported that they never used instructional media and technologies whereas other percentages were insignificant on use of display instructional media and technologies. Figure 4.6 below further emphasizes the distribution of teachers' responses on how often they use instructional media and technologies.



**Figure 4.4 How often teachers used instructional media and technologies**

Further, teachers were asked whether the instructional media and technologies they used were adequate or inadequate. Out of 92 respondents, 27 (29.3%) of the teachers reported that instructional media and technologies were adequate while 65 (70.7%) of the teachers reported that instructional media and technologies were inadequate. During the headteachers' interview, all the head-teachers of the selected schools confirmed that there are instructional media and technologies available but inadequate. Although, there are inadequate instructional media and technologies teachers regularly use them to facilitate lessons. To confirm what the teachers and the head-teachers said, an item in the students' questionnaire asked the instructional media and technologies used for the learning process.

**Table 4.9** indicates students responses.

**Table 4.9: Instructional media and technologies for learning processes**

Item	No		Yes	
	Frequency	Percentage	Frequency	Percentage
Chalkboard	258	100	0	0
Maps and Diagrams	20	7.8	238	92.2
Globes	118	45.7	140	54.3
Charts	33	12.8	225	87.2
Magazines	157	60.9	101	39.1
Journals	228	88.4	30	11.6
Radio	186	72.1	72	27.9
Television	184	71.3	74	28.7
Video recordings	213	82.6	45	17.4
Computer	107	41.5	151	58.5

*N/B: Percentages are based on the number of responses for each item*

**Source: Field Work 2021**

According to this objective, table 4.9 shows that out of 258 respondents; all the respondents reported that all the teachers frequently use the chalkboard in their lesson presentations with or without the support of any other media/technology. 238 (92.2%) of students indicated that teachers regularly use maps and diagrams during the learning process whereas 20 (7.8%) reported that they never used Maps and diagrams. 140 (54.3%) reported the use of the globes whereas 118 (45.7%) reported that they never used globes. Two hundred and twenty-five (87.2%) students indicated that they use charts during the learning process whereas thirty-three (12.8%) students reported that they never used charts, 101(39.1%) reported the use of Magazines whereas 157(60.9%) reported that they never used Magazines, 30 (11.6%) reported the use of Journals whereas 228 (88.4%) reported that they never used Journals, 72 (27.9%) reported the use of Radio whereas 186 (72.1%) reported that they never used radio, 74 (28.7%) reported the use of television whereas 184 (71.3%) reported that they never used television, 45 (17.4%) reported the use of video

recordings for learning whereas 213 (82.6%) reported that they never used Video Recordings, 151(58.5%) reported the use of computers for learning whereas 107 (41.5%) reported that they never used computers for learning.

Furthermore, an item in the teacher's questionnaire was used to find out the factors that influence teachers' interactivity and use of instructional media and technologies. This is shown in the **Table 4.10** below.

**Table 4.10 Factors that influence interactivity and use of instructional media and technologies**

Responses	SD		D		UD		A		SA	
	F	P	F	P	F	P	F	P	F	P
Enough resources for the classes (students)	1	1.1	7	7.6	3	3.3	32	34.8	49	53.2
Skills and knowledge of technology to use	2	2.2	5	5.4	3	3.3	36	39.1	46	50.0
Importance of the instructional technology	4	4.3	14	15.2	2	2.2	33	35.9	39	42.4
Availability of appropriate instructional technologies	3	3.3	2	2.2	6	6.5	28	30.4	53	57.6
Enrolment of students in a particular class	14	15.2	21	22.8	16	17.4	31	33.7	10	10.9
Availability of funds to buy the needed materials	12	13	8	8.7	11	12	35	38	26	28.3
Mastery experience	2	2.2	3	3.3	1	1.1	46	50.0	40	43.4

**Source: Field work 2021**

From table 4.10, there is an indication with regards to the factors that influence the interactivity and use of instructional media and technologies in the teaching and learning processes. The table shows that 1 (1.1%) strongly disagreed, 7 (7.6) disagreed while 3 (3.3%) were not sure with the statement they only interact and use instructional media and technologies if only there are enough resources for the enrolled class. The table further depicts that 32 (34.8%) of the respondents agreed with the statement while 49 (53.2%) strongly agreed. Data collected on the statement the knowledge and skills they have per a

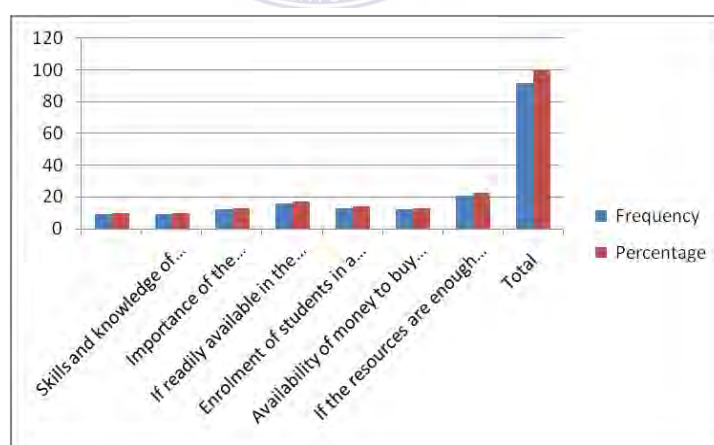
particular instructional media and technologies that can be used to facilitate a particular lesson produced 2 (2.2%) respondents who strongly disagreed with the statement. While 5 (5.4%) disagreed, 3 (3.3%) were not sure. Meanwhile, 36 (39.1%) agreed while 46 (50.0%) strongly agreed with the statement. The table further shows that 4 (4.3%) strongly disagreed while 14 (15.2%) disagreed with the statement “Importance of the instructional technology to teach specific topics or concepts”. As 2 (2.2%) were not sure about the statement, 33 (35.9%) agreed as against 39 (42.4%) who strongly agreed with the statement. Once again it can be deduced from the table that while 3 (3.3%) strongly disagreed with the statement the availability of appropriate instructional media and technologies, 2 (2.2%) disagreed. However, 6 (6.5%) were not sure whereas 28 (30.4%) agreed and 53 (57.6%) strongly agreed with the statement respectively. The data further shows that 14 (15.2%) of the respondents strongly disagreed while 21 (22.8%) disagreed with the statement enrolment of students in a particular class. While 16 (17.4%) were not sure, 31 (33.7%) agreed while 10 (10.9%) strongly agreed with the statement. On the issue of availability of funds to buy the needed materials, 12 (13%) of the respondents strongly disagreed while 8 (8.7%) disagreed. 11 (12%) said they were not sure whereas 35 (38%) agreed and 26 (28.3%) strongly agreed with the statement respectively.

The table further shows the responses to the statement that mastery of skills in the use of particular instructional media and technologies to support teaching and learning. As 2 (2.2%) respondents strongly disagreed with the claim, 3 (3.3%) disagreed. While 1 (1.1%) were not sure, 46 (50.0%) agreed with the statement. Not only that, 40 (43.4%) strongly agreed with the statement. Similar findings exist on the link between contextual factors and their willingness to integrate ICT tools. Thus, Mastery experiences involve the direct, personal performance of a task, or the actual experiences that an individual undergoes (Wangeri & Otanga, 2014).

Apart from the stated reasons, respondents were to specify any other reasons that influence them to interact and use instructional media and technologies in the teaching and learning processes. They revealed that they were influenced by the time available to prepare for the technology, the versatility of the instructional media and technologies, reliable power supply, if involved in the procurement process, attention given by the administration, provision of instructional media and technologies by the school, availability of spacious rooms, students' level of understanding and, accessibility to the instructional media and technologies, syllabus requirement, the load of the subject and freedom of use.

The statistics, therefore, revealed that the majority of the basic school teachers are influenced by a lot of factors that enable them to use instructional media and technologies to enhance the teaching and learning processes. **Figure 4.5** further emphasizes the distribution of teachers' responses on factors that influence their interactivity and use of instructional media and technologies respectively.

**Figure 4.5 Factors that influence the teachers' interactivity and use of instructional media and technologies**



Conversely, the headteachers confirmed that teachers' interactivity and use of instructional media and technologies was influenced by their availability even though some of the instructional media and technologies' used posed a big challenge to some teachers.

The study, therefore, used an observation schedule to confirm what was given by both teachers and students.

The researcher decided to investigate further whether the instructional media and technologies were adequate for both teachers and students to make a fair judgment about the interactivity and use of instructional media and technologies in the sampled schools. The research confirmed interactivity and use of instructional media and technologies through the use of some instructional media and technologies were challenging to some teachers whilst head-teachers also confirmed interactivity and use of instructional media and technologies though they were inadequate.

Students must be actively involved and participate in learning to help develop their competencies. UNESCO (2002); Power (2015) affirms that learning is an active and not a passive process. Effective and efficient learning occurs when learning is consistent, interactive and linked. That is, instruction and learning should be engaging and support combinations of active, constructive, intentional, authentic and cooperative learning since they are cooperative.

Omariba et al, (2016) in his study confirmed that other teachers in the world used instructional media and technologies in teaching and learning, therefore by using them both teachers and students are moving to the digital era. Hence, the availability of instructional media and technologies does not automatically mean the appropriate utilization of the same whereas Lee and Reeves, (2018) assert that the use of technology cannot become meaningful support for students' work if they have access to it for only a few minutes a week. Moreover, students should be given the opportunity and ample time to interact with instructional media/technology which is a way will motivate and ensure students active participation and involvement in lessons. This will help to reduce the duration for particular instruction and aid in a lot of content in a concise form.

The findings of the study, therefore, revealed that teachers were influenced by certain factors such as availability of instructional media and technologies, knowledge and skills on use, time available to prepare, reliable power supply, procurement process, administrative support if the instructional media and technologies are provided by the school, availability of the room, the versatility of the technology, their importance in teaching the topic, students' level of understanding and enrolment, curriculum requirement, resources accessibility, teachers' workload and the cost of resources.

To ensure effective and efficient lessons, teachers need to pay much attention to the integration of instructional media and technologies during teaching and learning. The research, therefore, opted to investigate the readiness of teachers on how to successfully use instructional media and technologies in the teaching and learning process.

#### **4.2.4 Question Three: Teachers' preparedness on use of instructional media and technologies**

Research question three of the study was to investigate how prepared, trained and equipped teachers are on how to use instructional media and technologies in the teaching and learning processes. Boahen and Atuahene (2021), preparation and planning are critical components of effective teaching. Lack thereof will lead to failure hence, all teachers should be adequately prepared to ensure effective and efficient teaching and learning. Good teachers are always in an uninterrupted state of preparation and planning and think about the way forward. Effective and efficient teachers possess a profound understanding of the curriculum by planning, teaching, and assessing to promote mastery for all students.

Teachers are an important resource in the teaching and learning process. Therefore, their preparedness should enable them to develop sufficient subject mastery and pedagogy.

Teachers' were then asked whether they were trained or not on the use of instructional media and technologies. The table below indicates their responses.

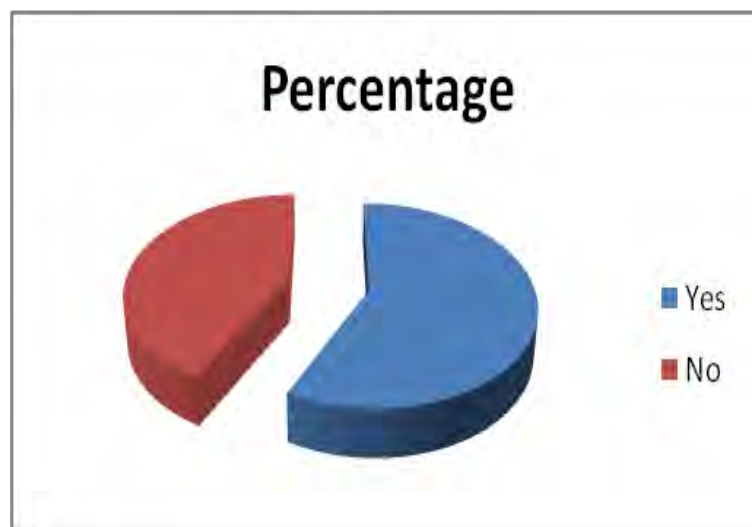
**Table 4.11 Teachers' preparedness on use of instructional media and technologies**

Response	Frequency	Percentage
Yes	53	57.6
No	39	42.4
<b>Total</b>	<b>92</b>	<b>100</b>

Source: Field work 2021

According to table 4.11, the majority of the respondents 53 (57.6%) out of the 92 respondents indicated that they were trained on how to successfully use instructional media and technologies, whereas 39 (42.2%) reported they were not trained on instructional media and technologies. The pie chart below (fig.4.6) further emphasizes the distribution of the responses.

**Figure 4.6 Teachers' preparedness on use of instructional media and technologies**





It was obvious that all the teachers in the sampled schools were academically and professionally qualified to teach various subjects. Further, the research sought to find out apart from textbooks and other print resources if there were other instructional media and technologies used for subjects taught in the selected schools. Table 4.12 below shows their responses.

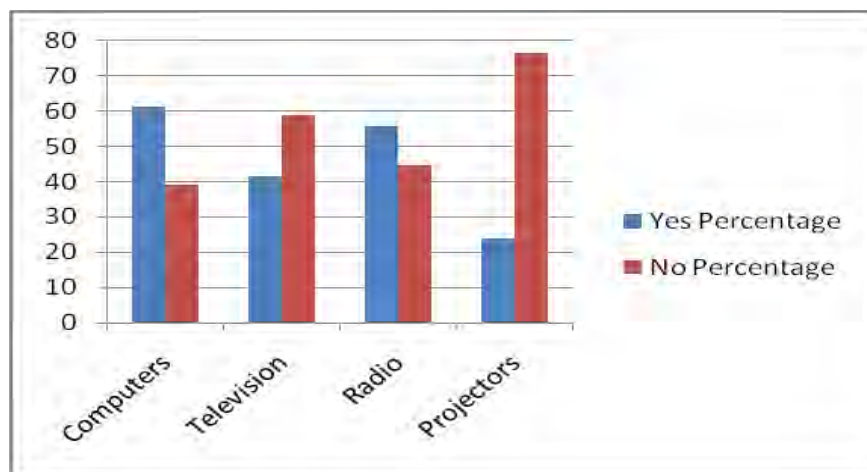
**Table 4.12 Other instructional media/technologies used for teaching and learning**

Responses / Items	YES		NO	
	Frequency	Percentage	Frequency	Percentage
Computers	56	60.9	36	39.1
Television	38	41.3	54	58.7
Radio	51	55.4	41	44.6
Projectors	22	23.9	70	76.1

**Source: Field work 2021**

From table 4.12, out of the 92 respondents 56 (60.9%) reported that they use computers for teaching and learning whereas 36 (39.1%) do not use computers for teaching and learning, 38 (41.3%) of the teachers reported the use of television for teaching and learning whereas 54 (58.7%) reported that they do not use television for teaching and learning, 51 (55.4%) of the respondents reported that they use radio for teaching and learning whereas 41 (44.6%) do not use video recorders for teaching and learning and 22 (23.9%) of the respondents reported that they used projectors for teaching and learning whereas 70 (76.1%) reported that they do not use computers for teaching and learning. The bar chart below (figure 4.7) analyzes the distribution of the above responses of the respondents.

**Figure 4.7 Other instructional media and technologies used for teaching and learning**



The researcher wanted to confirm whether what was reported by both teachers on the use of instructional media and technologies were true. The research interviewed the headteachers of the selected schools and it was disclosed that only a few teachers used different instructional media and technologies in teaching their subjects. It was also confirmed that the print media (textbooks) were commonly used but were not effectively used.

Also, 7 confirmed that teachers were only prepared on their areas of specialization during training at the College or University level but the majority of the teachers were not prepared to meet the technological changes of the 21<sup>st</sup> century. All the eight headteachers further stated that even if students learnt and acquired knowledge with ease when instructional media and technologies were used, most schools have not equipped teachers with these instructional media and technologies.

It was also revealed by respondents that the workload was so broad that if they use instructional media and technologies they may not cover all the topics in the curriculum since there was limited time and some lacked the technical know-how on the use of some

instructional media and technologies. To teach properly teachers have to appropriately select the instructional media and technologies in order to bring variations in their lessons. For them to do so, teachers will have to consider the students, instructional objectives, methodology and various kinds of instructional media and technologies. It is expected that such teachers are competent, efficient, effective, resourceful and skilful in the use of instructional media and technologies.

Results that emanated from the classroom observations on teachers revealed that teachers rarely used other instructional media and technologies such as computers, televisions, radios and many others besides textbooks, chalkboards and laboratory equipment for teaching various subjects. None of the observed teachers had anything more or different. The scenario was largely that of "talk and chalk". Moreover, the teachers who responded to the questionnaire gave several different factors as influencing their choice and use of instructional media and technologies in the teaching and learning process. Kukali (2013) in a study revealed that teachers do not want to use the available resources although they were academically and professionally qualified, however, this had very little influence on the teachers' selection and use of instructional media and technologies.

Teachers need to be abreast with not only the subject matter and the pedagogy but they also need to know how to bring variations into the subject matter through technology integration and its application. In support of the above, Koehler and Mishra (2013) stressed that teachers must understand the possibilities and constraints of certain technology and the skills to utilize such technology efficiently in the classroom.

Additionally, Omariba et al (2015) argued that to be able to guide students thinking, teachers are supposed to understand how students' idea about a subject is developed as well as the connection between their ideas and the important concepts in the discipline. This is what Koehler and Mishra (2013) regards as pedagogical content knowledge which

refers to the knowledge of pedagogy applicable to the teaching of specific content covering the core business of teaching, learning, curriculum, assessment and reporting. Their assertion suggests that it is appropriate to select teaching pedagogy to fit a particular content as well as technology and also understands how the elements of the content and technology can be appropriately arranged towards effective and efficient teaching.

#### **4.2.5 Question four: Challenges faced by both teachers and students on the use of instructional media and technologies**

This aspect provides information on the responses of both teachers and students on the challenges they face in using instructional media and technologies for teaching and learning. Table 4.13 indicates teachers' responses.



**Table 4.13 Challenges facing teachers on the use of instructional media and technologies**

Challenges faced by teachers	SD		D		UD		A		SA	
	F	P	F	P	F	P	F	P	F	P
Limited knowledge and skills on the use of some instructional technologies	2	2.2	1	1.1	2	2.2	39	42.4	48	52.1
No enough instructional technologies	0	0	8	8.7	5	5.4	42	45.7	37	40.2
Unavailable funds to buy various instructional technologies	0	0	0	0	16	17.4	26	28.3	50	54.3
Limited time to use various instructional technologies	2	2.2	2	2.2	0	0	48	52.1	40	43.5
Lack of support from authorities	3	3.3	1	1.1	11	12	36	39.1	41	44.5
Lack of technical support regarding the use of instructional technologies	2	2.2	5	5.4	1	1.1	26	28.3	58	63
Lack of training opportunities for IMT integration in teaching and learning	1	1.1	1	1.1	2	2.2	32	34.7	56	60.9

*N/B: Percentages based on the number of responses given*

**Source: Field work 2021**

Table 4.13 indicates what responses respondents gave about the challenges faced by teachers in the use of instructional media and technologies in the teaching and learning processes. A Series of statements were made for respondents to indicate their agreement or disagreement with the statements. From the table 2 (2.2%) strongly disagreed, 1 (1.1%) disagreed while 2 (2.2%) were not sure with the statement "limited knowledge and skills on the use of some instructional media and technologies". However, while 39 (42.4%) agreed with the statement, 48 (52.1%) strongly agreed with the statement respectively. Data on the statement that there are not enough instructional media and technologies in

the various schools indicate that 8 (8.7%) of the respondents disagreed with the statement. On the other hand, while 5 (5.4%) were not sure, 42 (45.7%) agreed but 37 (40.2%) strongly agreed with the statement. The table further shows that 16 (17.4%) were not sure with the statement that, unavailability of funds to buy different kinds of instructional media and technologies is a threat to the use of instructional media and technologies in the teaching and learning process. However, 26 (28.3%) agreed with the statement while 50 (54.3%) strongly agreed that the unavailability of funds to buy different kinds of instructional media and technologies is a challenge to the integration of resources in teaching.

At the classroom level, teachers' philosophy can speed up or slow down curriculum reforms as they are resistant to change and play a vital role in teaching and learning processes (Boaler, 2013). Findings from a study done by (Kukali, 2013) have shown that teachers, who start using ICT in their teaching, initially believe that technologies create a lot of work for teachers. On the statement limited time to use various instructional media and technologies, the table shows that 2 (2.2%) strongly disagreed while 2 (2.2%) disagreed. As 48 (52.1%) agreed while 40 (43.5%) strongly agreed that the time allotted for lessons is not enough to use instructional media and technologies. Data collected on lack of support from authorities or administration show that 3 (3.3%) respondents strongly disagreed with the statement while 1 (1.1%) strongly disagreed. However, as 36 (39.1%) agreed, 41 (44.5%) strongly agreed with the statement whereas 11 (12%) were not sure.

Another statement that attracted 2 (2.2%) respondents strongly disagreeing and 5 (5.4%) disagreeing was lack of technical support regarding the use of instructional media and technologies. While 26 (28.3%) agreed with the statement, 1 (1.1%) were not sure but 58 (63%) strongly agreed that lack of technical support regarding the use of instructional

media and technologies hinders teachers from integrating instructional media and technologies in the teaching and learning processes.

Finally, the table further shows that 1 (1.1%) disagreed with the statement that lack of training opportunities for IMT integration in teaching and learning is a challenge for teachers. While 2 (2.2%) were not sure of the statement, 32 (34.7%) agreed. The table once again shows that 56 (60.9%) strongly agreed with the statement while 1 (1.1%) strongly disagreed.

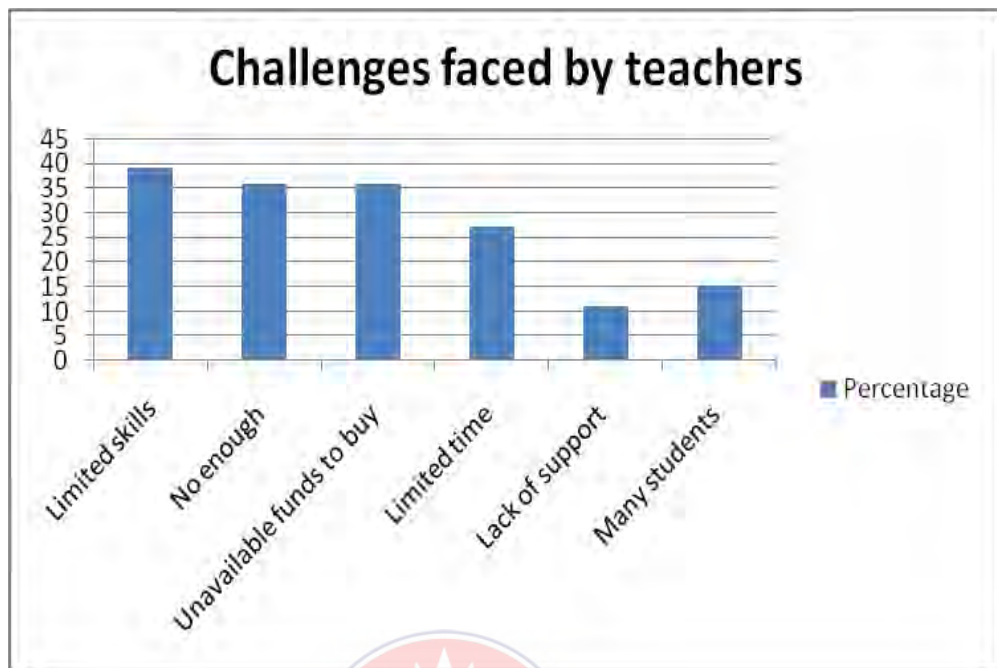
Respondents were also allowed to specify other reasons that pose a challenge in the integration of instructional media and technologies in the teaching and learning processes.

Issues raised include; lack of infrastructure (storage facilities), space for installing materials, undependable power supply, poor budgeting, lack of administrative support, low equipped laboratories and loss of materials. They were however not motivated to integrate instructional media and technologies in their teaching and learning. Others also complained that they were not consulted during the procurement process, had no time to prepare, improvise or apply instructional media and technologies,

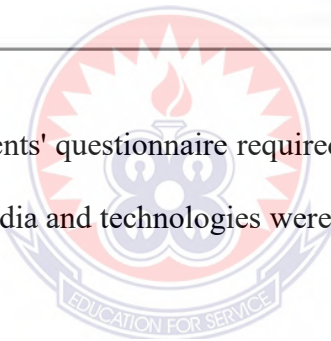
In an interview with the head-teachers, they also confirmed that some instructional media and technologies such as radios, televisions, computers break down hence teachers fail to apply instructional media and technologies. Some students sometimes misunderstand some concepts being taught whereas some teachers still believed students would perfectly understand the information given even if they refuse to use instructional media and technologies during teaching and learning provided they are well explained.

The figure (figure 4.8) further highlights the challenges faced by teachers on the use of instructional media and technologies.

**Figure 4.8 Challenges faced by teachers in the use of instructional media and technologies**



Further, an item in the students' questionnaire required students to state challenges they faced when instructional media and technologies were used. Table 4.14 depicts students' responses as follows:





**Table 4.14 Challenges faced by students on the use of instructional media and technologies**

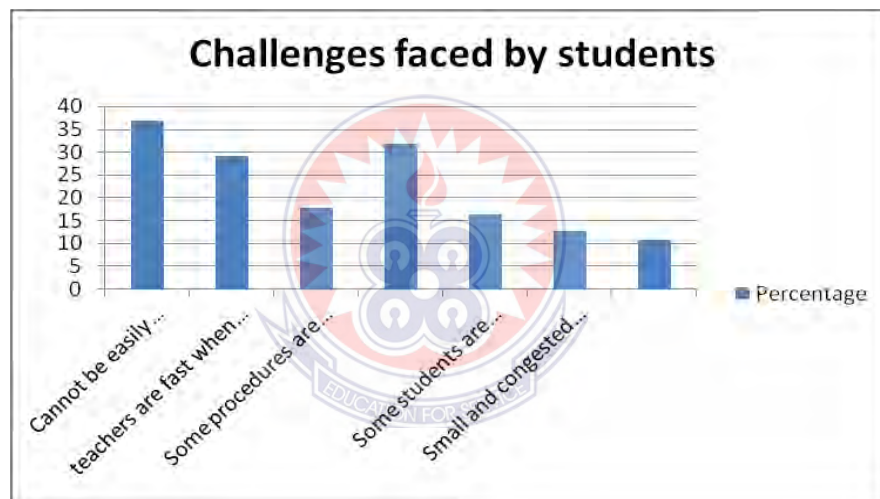
<b>Challenges faced by Students</b>	<b>Frequency</b>	<b>Percentage</b>
Some instructional technologies cannot be easily understood	95	36.8
Some teachers are fast when explaining	75	29.1
Some procedures are difficult to follow	46	17.8
Some instructional technologies are not enough	82	31.8
Some students are illiterate on use of some instructional technologies	42	16.3
Small and congested rooms	33	12.8
Not enough explanations by teachers	28	10.9

**Source: Field work 2021**

Table 4.14 represents the challenges faced by students whenever instructional media and technologies are used in teaching and learning. Out of the 258 respondents, 95(36.8%) of the students reported that some instructional media and technologies could not be easily understood, 75 (29.1%) of the students reported that some teachers were fast paced when explaining content with the help of instructional media and technologies which made them not to comprehend the lesson, 46 (17.8%) of the students reported that some procedures were difficult to follow when done once thus they needed more practice which was denied due to large class size, 82 (31.8%) of the students reported that some instructional media and technologies were not enough thus led to sharing of resources hence limiting individual accessibility and practice, 42 (16.3%) of the students reported that they were illiterate on use of some instructional media and technologies, 33 (12.8%) of the students reported there were small and congested classrooms, 28 (10.9%) of the students reported that there was no enough explanations given by teachers when some instructional media and technologies were used. Other students in negligible percentages reported lack of accessibility to some instructional media and technologies during their free time, lack of

skilled personnel to assist especially from some teachers and other personnel, some students steal the resources for others not to use, while others felt that the use of some instructional media and technologies waste time and others said some subject teachers use instructional media and technologies while others don't use it at all. Figure 4.9 emphasizes further the distribution of students' responses to challenges faced by students on the use of instructional media and technologies.

**Figure 4.9 Challenges faced by students on the use of instructional media and technologies**



To verify the information given by teachers and students, the research sort information from the head-teachers whereby there was an item asking those challenges teachers and students faced and they both confirmed what was given by both teachers and students.

The teachers and students were further asked to give suggestions regarding the challenges they experienced when using instructional media and technologies. **Table 4.15** shows teachers' suggestions on how to overcome the challenges faced.

**Table 4.15 Teachers' suggestions on overcoming the challenges faced**

<b>Suggested ways of overcoming the challenges faced</b>	<b>Frequency</b>	<b>Percentage</b>
Train teachers in how to handle instructional technology	36	39.1
School to buy more instructional technologies	32	34.8
School organize donors to assist buying materials	8	8.7
Government to ensure electrification in all schools	6	6.5
Expose students to technology early	10	10.9

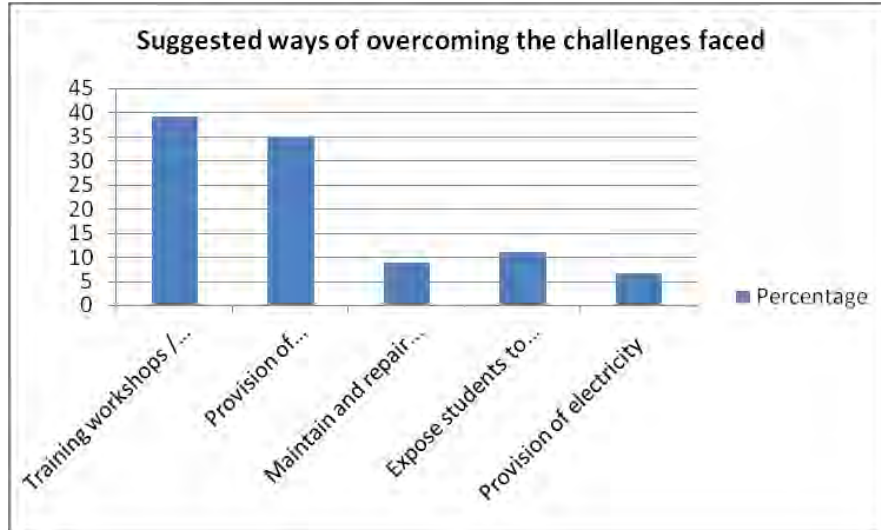
Source: Field work 2021

From table 4.15, out of 92 respondents; 36 (39.1%) of the teachers suggested that workshops, seminars and in-service training should be organised for teachers to train them on how to apply or use instructional media and technologies such as computers /ICT during teaching and learning. Thirty-two(34.8%) of the teachers suggested that the schools acquire more instructional media and technologies in other to be able to cater for the larger classes, 8 (8.7%) of teachers suggested that the schools maintain and repair instructional media and technologies, 10(10.9%) of teachers suggested that students should be exposed to the application of technology, its advantages and disadvantages at their early stages. (6.5%)of the teachers suggested that there should be the provision of reliable power supply in all schools by the stakeholders.

Other suggestions specified by the teachers as a remedy were that the schools should put up an infrastructure to accommodate resources, provide reliable power supply, acquire modern tools and equipment, install the alternatives power supply, provide security and stores for keeping facilities, management to collaborate with teachers on material requisition, reduce students intake, provide internet access, employ more skilled personnel to reduce teachers workload, motivate teachers for improvisations and the government to

help schools to purchase more materials by providing more funds. The figure (figure 4.10) further emphasizes the responses given in table 4.15.

**Figure 4.10 Teachers' suggestions on how to overcome the challenges.**



**Table 4.16 Students' suggestions on overcoming the challenges faced**

<b>Suggested ways of overcoming the challenges faced</b>	<b>Frequency</b>	<b>Percentage</b>
Provide enough and quality computers & other instructional technologies	178	68.9
Allow students to have access to instructional technologies for hands on during their free time	127	49.2
Provide more skilled personnel	83	32.1
Lesson presentation by teachers should neither be too slow nor too fast	98	37.9
Teachers must use simple terms and well explained concepts during teaching	77	29.8

Source: Field work 2021

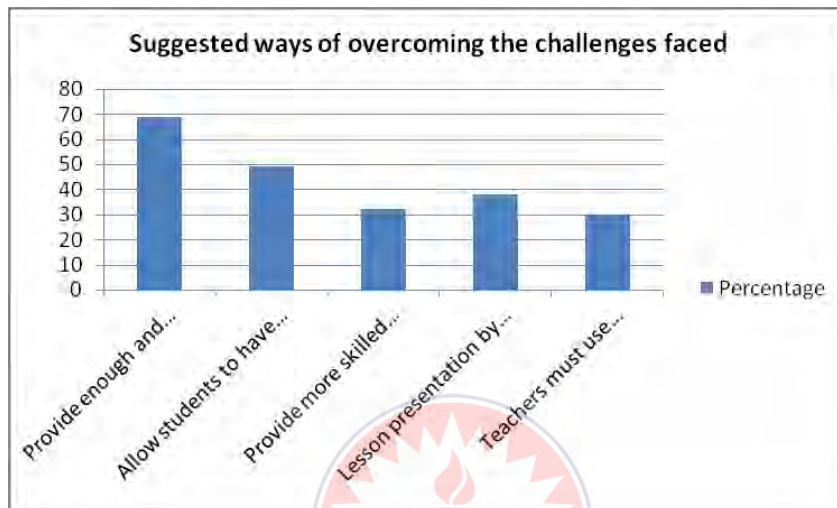
From table 4.16, out of 258 respondents, 178 (68.9%) of students suggested that school authorities should provide enough and quality instructional media and technologies more especially computers to help teachers to facilitate their teaching and learning, 127 (49.2%) of students also suggested that teachers should allow them (students) to have access to instructional media and technologies for hands-on activities during their free time in other to help them become more perfect, 83 (32.1%) of students stated that schools should employ more technical and skilled personnel to help assist in the use of instructional media and technologies to support teaching and learning, 98 (37.9%) of students suggested that lesson presentation by teachers using instructional media and technologies should neither be too slow nor too fast during teaching and learning, 77 (29.8%) also suggested that teachers must use simple terms and explain concepts very well to learners to be able to understand concept being taught.

Other students suggested in minimal percentages that the schools should provide internet access in the school, provide additional power supply should in case of power failure, the use of instructional media and technologies should be made compulsory by all teachers,

expand the room sizes and reduce class size and also be introduced to technology at the early stages.

Figure 4.11 emphasizes the results shown in the table, and the percentages show students' suggestions on how the challenges can be overcome.

**Figure 4.11 Students' suggestions on how to overcome the challenges.**



The findings revealed a myriad of challenges facing both teachers and students in the use of instructional media and technologies. However, the findings revealed an extremely great number of challenges facing both teachers and students in the use of instructional media and technologies during teaching and learning. This supports Antwi et al (2018) in a study, the Information Technology Challenge in Teaching Senior High School Geography in Ghana and Ameyaw (2019) in a survey on the use of teaching and learning material (TLMs) in teaching mathematics and the influence it has on students' performance in Cape Coast Municipality of Ghana. Atuahene (2019) also found out that most teachers in schools did not integrate ICT tools in teaching and learning due to ignorance of their importance and called for the organization of workshops, seminars and hands-on activities to help equip the teachers on how to effectively and efficiently use ICT tools during teaching and learning.

Agyei and Voogt (2011) also in a study on ICT usage in the teaching of mathematics: Implications for professional development of pre-service teachers in Ghana indicated that importance has not been placed on preparing teachers to use ICT in their instruction. From the result of the study, it can be concluded that teachers in the classroom should employ the usage of instructional media and technologies in their learning environment to help learners to understand some basic concepts in various subjects. This conforms to the study made by “Ampiah, J. G. (2008)” that teachers' usage of the "chalk and talk" method does not enhance the understanding of pupils. But using the structured method and available teaching and learning materials effectively enhances the understanding of pupils. This shows that teachers should make good use of available instructional media and technologies at their disposal.



## CHAPTER FIVE

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

#### 5.0 Introduction

The overall objective of the study was to establish the effectiveness and challenges faced by teachers and students in the use of instructional technology in the teaching and learning process.

This chapter is dedicated to the summary of the research findings, conclusions, recommendations and suggestions for further research.

#### 5.1 Summary of Research Findings

The research was carried out to explore the utilisation and challenges of instructional media/technologies: what resources are available, whether or not the resources were adequate, their accessibility, interactivity, and use of instructional media/technologies between the teachers and students, school organization policy on the use of instructional media/technologies, the novelty of the instructional media/technologies and trendiness on use. The overall objective of the study was to establish the effectiveness and challenges faced by teachers and students in the use of instructional technology in the teaching and learning process.

Chapter two discusses the theoretical framework on the ACTIONS model making decisions about the use of pedagogic technology and planning lessons that technology will enhance. The chapter also reviewed related literature relevant to the study; the views, findings and suggestions made by earlier researchers on the topic. Areas like the use of instructional media and technologies in teaching and learning, classifications, importance and challenges of using instructional technology and its effects on learner's behaviour.



Chapter three discusses the methodology of the study; the paradigm for this research was both qualitative and quantitative, a survey research design was adopted for the study. All the Basic schools in the Offinso Municipality were the main target population. Eight schools out of 173 basic schools namely; OFCE Demonstration JHS, State 'A' JHS, State 'B' JHS, Asamankama SDA JHS, Amoawi Methodist JHS, Christian Methodist JHS, Dominican JHS, and Immaculate JHS. Three hundred and fifty-eight participants were used for the study (252 pupils, 92 teachers, 8 Head-teachers).

Based on the objective one of this study, findings indicated that most of the instructional media/technologies such as textbooks, journals, magazines, school pamphlets, wall maps, computers, videos, charts, globes and models were widely available for teaching and learning process. Many of these available instructional media/technologies were inadequate in terms of quantity and inaccessible to both teachers and students during the teaching and learning process.

Also, in objective two, the choice of instructional media/technologies was influenced by their availability and how they will enhance teaching and learning as well as the technical knowledge and skills on the effective and efficient use of instructional technology and the available time for preparation.

Other factors include: reliable power supply, procurement process, administrative support, if the technologies are provided by the school, space, large class size, teachers work load, initial cost among others.

In objective three, teachers in the selected basic schools were academically and professionally trained and qualified, competent, effective and efficient in the use of instructional media and technologies during the teaching and learning process. Meanwhile, teachers' academic and professional qualification had little or no influence

how to effectively and efficiently integrate and use instructional media and technologies in teaching and learning process.

Objective four was based on the challenges faced by both teachers and students in the use of instructional media and technologies during the teaching and learning process. Hence, this was reported that:

- i. Some teachers had limited or no skills in the use of some instructional media and technologies.
- ii. Inadequate or unavailability of instructional media and technologies
- iii. Unavailability of funds to buy instructional media and technologies, limited time to use the various instructional media and technologies as the syllabus was so wide that they may not cover it.
- iv. Lack of administrative support, large class size, unreliable power supply, low equipped laboratories, no time to improvise while some teachers were lazy and never bother to use instructional media and technologies,
- v. Also, some teachers still believed that they can best explained information well without instructional media and technologies for students to understand better.

Students reported that:

- i. Some instructional media and technologies could not be understood
- ii. Some teachers were fast paced when explaining concepts with the help of instructional media.
- iii. Some procedures were difficult to follow when done once thus they needed more practice which was denied due to large class size
- iv. Some instructional media and technologies were not enough thus led to sharing of resources hence limiting individual accessibility and practice

- v. Lack of skilled personnel to provide assistance especially from some teachers and other personnel
- vi. Some students steal the resources for others not to use
- vii. lack of accessibility to some instructional media and technologies during their free time
- viii. lack of knowledge and skills on use of some instructional media and technologies
- ix. lack of enough explanations from teachers,
- x. theft

### **5.3 Conclusion**

The research concluded that, print resources were the most commonly used available instructional media/technologies in the selected basic schools in the Offinso Municipality of Ghana as many of the accessible instructional media technologies were insufficient in both quality and quantity. Parents were the main providers of instructional media/technologies to support the teaching and learning process whilst the schools provided a few.

Also, the teachers acknowledged the role played by the use of instructional media/technologies during the teaching and learning process.

Although many teachers in the selected basic schools in Offinso Municipal were qualified academically and professionally, but inadequate or no workshops, seminars and in-service training on the use of instructional media/technologies were organised for the teachers. They mostly use textbooks, chalkboards, charts, maps, handouts, pamphlets, diagrams and hardly integrate most of the available instructional media and technologies in their schools during teaching and learning. Some schools had computers but they were only used for

administrative purposes and sometimes teaching computer related subjects (Information Technology Communication)

Furthermore, instructional media/technologies available in schools should be used on daily basis by all teachers in the classroom at the introductory, development and plenary stages of lesson delivery in order to help facilitate students understanding of concept, gain much information and knowledge. *“Learning is facilitated when new knowledge is integrated into learners’ world... Education as central to a knowledge society must produce people who are able to create and gain from the new knowledge.”* (Kyndt, Beusaert, & Zitter, 2021).

However, it is required that students are always given access to instructional media/technology and opportunity to manipulate and acknowledge the skills and knowledge each instructional media/technology provide since the selection of instructional media/technologies can greatly influence the way and manner how information may be structured and manipulated. Hence, this research will educate teachers on the appropriate, effective and efficient use of instructional media/technologies.

#### **5.4 Recommendations of the study**

Based on the findings of the study, the following recommendations have been made for future consideration:

- i. Regularly review of the curriculum of the teacher training institutions by Ministry of Education by integrating media/technology with a view of improving the trainees’ knowledge and skills on how to use instructional media/technology in teaching and learning processes.
- ii. The education directorate and other stakeholders should organize workshops, seminars and in-service training on regular basis to familiarize and sensitize with

a wide range of instructional media/technologies and their potentials. This could trigger teachers' creativity and innovation in the use of instructional media and technologies in teaching and learning process.

- iii. The inspectorate division of Ghana Education Service should have regular visits to the schools to assess the availability, state and utilization of instructional media and technologies. This will make teachers alert and prompt them to prepare and use the instructional media and technologies frequently.
- iv. Teachers and head teachers should solicit for instructional media and technologies from parents, NGOs, stakeholders of education, GES and other educational units that can provide help in provision of instructional media and technologies to ease the problems of insufficiency or lack of instructional media and technologies in basic schools.
- v. Head teachers, Inspectorate Division, Ghana Education service should also encourage teachers to locally prepare instructional media and technologies assisting them with the available local and necessary raw materials and establish resource centres to house them in the various schools.

### **5.5 Suggestions for further research**

- a. Evaluating the quality and suitability of the use of instructional media and technologies in lesson delivery.
- b. Utilization of emerging technologies in the teaching and learning process.

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## APPENDICES

### APPENDIX A

#### A: OBSERVATION SCHEDULE

##### **Observational Guide on Teachers' Lessons Delivery**

This observational guide is developed to help the researcher observe teacher's classroom practices through their lessons delivery. Areas of interest includes the type, availability, accessibility, appropriateness, use and challenges of instructional media/technologies

1. What type of instructional media/technologies is available for use in the classroom to support teaching and learning.
  1. Printed
  2. Display
  3. ICT
  4. Any (Specify)
2. How often do teachers use instructional media/technologies to support the teaching and learning processes?
3. When do teachers use instructional media/technology in the teaching and learning processes
4. Are there available instructional media/technologies to support teaching and learning.
5. Are there adequate of instructional media/technologies for teaching and learning.
6. Are the media/technologies selected appropriate for teaching and learning
7. What are the factors that influence the interactivity and use of instructional media/technologies
8. What methods of teaching do teachers adopt in using instructional media/technologies



9. What are the challenges faced by teachers and students in the use of instructional media/technologies in the teaching and learning processes.

Instructional media/technologies		Adequate	Inadequate	Comments
<b>A. PRINT RESOURCES</b>				
1.	Textbooks			
2.	Pamphlets			
3.	Others			
<b>B. ICT RESOURCES</b>				
1	Projectors			
2	Radio			
3	Videos			
4	Television			
5	Filmstrips			
6	Slides			
7	Computer			
8	Others			
<b>C. DISPLAY RESOURCES</b>				
1	Chalkboard			
2	Wall maps			
3	Charts			
4	Globes			
5	Models			
6	Lab equipment			
7	Whiteboards			
8	Others			

**APPENDIX B**

**TEACHERS' QUESTIONNAIRE**

**UNIVERSITY OF EDUCATION WINNEBA**

**FACULTY OF COMMUNICATION AND EDUCATIONAL SCIENCE**

**DEPARTMENT EDUCATIONAL LEADERSHIP**

**SCHOOL OF GRADUATE STUDIES**

*This questionnaire has been designed to solicit information for a research studies in Master of Philosophy (M.Phil) on the topic “Utilisation of instructional media/technologies in teaching and learning: challenges facing teachers and students in selected basic schools in Offinso Municipality” at the Department of Educational Leadership. You have been humbly selected as one of the respondents to help in the above study. The information you provide will help to find out the challenges facing teachers and students in the use of instructional media/technology. Be assured of maximum confidentiality on the information you shall provide.*

Instruction: Please tick (√) where applicable and provide responses where appropriate.

**SECTION A: Teachers Biographical Data**

Please tick your chosen response ( ) where appropriate.

1. Sex: Male [ ] Female [ ]

2. Age: a) 20 – 30 years [ ] b) 31 – 40 years [ ] c) 41 - 50 years [ ] d) over 50 years [ ]

3. What are your highest academic Qualifications?

[Diploma [ ] Bachelors' Degree [ ] Masters [ ] PhD [ ] Others

Which subject do you teach? (i) .....

4. For how long have you taught those subjects?

0 – 5 years [ ] 6 – 10 years [ ] 11 – 15 years [ ] 16 – 20 years [ ] above 21yrs [ ]

**SECTION B: – Availability and Use of Instructional Media/Technology.**

6. Which of the following categories of instructional media/technologies are available in your school?

i. Printed: Textbooks [ ], Journals [ ], Magazines [ ] School Pamphlets [ ], Wall Charts [ ]

ii. ICT: Computers, [ ] PowerPoint [ ], Radio [ ], Videos [ ], OHP [ ]

iii. Display: Charts [ ], Globe [ ], Models [ ], Cartoons [ ]

iv. Any (Specify) .....

7. How often do you use the following instructional media/technologies to teach your subject (s)?

Resources	Every time	Once a week	Once a month	Once a year	Never
Printed					
Display					
ICT					

8 a) Are the instructional media/technologies you use adequate in teaching your subject?

Yes [ ] No [ ]

Give reasons for your answer in 8 a) above .....

**SECTION C: Factors that influence interactivity and use of instructional technologies**

Responses	SA	A	UD	D	SD
Enough resources for the classes (students)					
Availability of appropriate instructional technologies					
Enrolment of students in a particular class					
Importance of the instructional technology					
Availability of funds to buy the needed materials					
Skills and knowledge of technology to use					

Others specify .....

9 Apart from textbooks which of the following Instructional media/technologies do you use for teaching and learning purposes?

Resource	No	Yes
i. Radio	[ ]	[ ]
ii. Television	[ ]	[ ]
iii. Video Recorders	[ ]	[ ]
iv. Computer	[ ]	[ ]

10 a) Have you been trained on the use of instructional media/technologies? Yes [ ]  
 No [ ]

b) Give reasons for your answer to 10 a) above.....  
 .....



**SECTION D: Challenges faced in the use of instructional media/technology.**

Indicate by using the following Keys: Strongly Agree (SA), Agree (A)

Undecided (UD),

Disagree (D) and Strongly Disagree (SD). Tick as appropriate.

STATEMENT	SA	A	UD	D	SD
11. There are inadequate text and reference books					
12. There is a lack of enough time for improvising resources					
13. In my opinion, students lack interest when instructional materials are used					
14. There is an unreliable electricity supply					
15. There are sufficient computers					
16. There is no internet connection in the school.					
17. There is a lack of internet connection in the school.					
18. There is a lack of technical assistance					
19. There is over-enrollment of students in our school					
20. There is a lack of support from the school authorities in purchasing IMT					
21. There are rapid technological changes in our schools					

22) In your opinion, what are some of the challenges facing you as a teacher in the use of instructional medium/technology? .....

.....  
 .....

23.) Suggest ways in which the above challenges can be overcome.....

.....  
 .....

**Thank you.**

**APPENDIX C:**  
**STUDENTS' QUESTIONNAIRE**  
**UNIVERSITY OF EDUCATION WINNEBA**  
**FACULTY OF COMMUNICATION AND EDUCATIONAL SCIENCE**  
**DEPARTMENT EDUCATIONAL LEADERSHIP**  
**SCHOOL OF GRADUATE STUDIES**

*This questionnaire has been designed to solicit information for a research studies in Master of Philosophy (M.Phil) on the topic “Utilisation of instructional media/technologies in teaching and learning: challenges facing teachers and students in selected basic schools in Offinso Municipality” at the Department of Educational Leadership. You have been humbly selected as one of the respondents to help in the above study. The information you provide will help to find out the challenges facing teachers and students in the use of instructional media/technology. Be assured of maximum confidentiality on the information you shall provide.*

Instruction: Please tick (√) where applicable and provide responses where appropriate.

**SECTION A: Biographic data.**

1. Sex: Male [ ] Female [ ]

2. Age a) 14-18 years [ ] b) 19-23 years [ ] c) 24 – 28 years [ ] d) Don't Know [ ]

**SECTION B: Availability and use of instructional technology.**

3. a) We are issued with all the textbooks for the subjects we do? Yes [ ] No [ ]

b) Give reasons for your answer in 3a) above .....

4. How do you acquire the textbooks? Tick all choices that apply

i. Parents buy [ ]

ii. Given by the school [ ]

iii. Donations from well-wishers [ ]

iv. From Siblings

Any other (Specify) .....

5. Are the textbooks adequate/ enough for the subjects you do?

(i) Yes  (ii) No

a). If yes, how adequate .....

b). If no, why do you think so? .....

Apart from textbooks, which other instructional medium/technology do you use during the learning process?

	<b>Resources</b>	<b>Yes</b>	<b>No</b>
i.	Maps and diagrams	<input type="checkbox"/>	<input type="checkbox"/>
ii.	Globe	<input type="checkbox"/>	<input type="checkbox"/>
iii.	Charts	<input type="checkbox"/>	<input type="checkbox"/>
iv.	Magazines	<input type="checkbox"/>	<input type="checkbox"/>
v.	Journals	<input type="checkbox"/>	<input type="checkbox"/>
vi.	Radio Lessons	<input type="checkbox"/>	<input type="checkbox"/>
vii.	Television	<input type="checkbox"/>	<input type="checkbox"/>
viii.	Video Recordings	<input type="checkbox"/>	<input type="checkbox"/>
ix.	Computer	<input type="checkbox"/>	<input type="checkbox"/>

Any Other (Specify) \_\_\_\_\_

7. a) Are you by the school to be computer literate Yes  No

b. If your answer is yes in (7a) above, state by ticking appropriate areas where you use your computer skills to enhance learning.

i. Browsing the internet

ii Exchanging ideas through e-mail

iii. Typing assignments

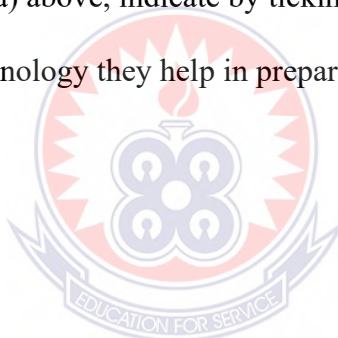
If your answer in (7a) above is No, State by ticking the appropriate reason why you don't use

- |  | <b>Yes</b> | <b>No</b> |
|--|------------|-----------|
| i. Limited time                          | [ ]        | [ ]       |
| ii. Computers not enough                 | [ ]        | [ ]       |
| iii. School Administration doesn't allow | [ ]        | [ ]       |
| iv. No internet connection in the school | [ ]        | [ ]       |
| Any other (Specify i) .....              |            |           |

8. Are students sometimes asked by teachers to assist in preparing some instructional medium/technology? Yes [ ] No [ ]

b). If the answer is yes, in (8a) above, indicate by ticking ( ) where appropriate the type of Instructional medium/technology they help in preparation.

- i. Charts
- ii. Maps
- iii. Models
- iv. Diorama
- v. Video show
- vi. Powerpoint presentation



	<b>STATEMENT</b>	<b>SA</b>	<b>A</b>	<b>UD</b>	<b>D</b>	<b>SD</b>
9	There are inadequate textbooks for the subjects taught					
10	There is a lack of variety for textbooks in the school library					
11	Some students are unwilling to use textbooks for fear of losing them					
12	I enjoy a lesson where a teacher uses a computer/point in					

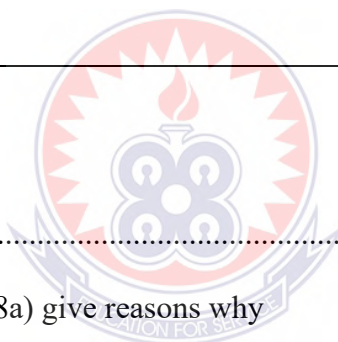
	teaching.					
13	I very much understand the content taught with the use of charts and maps aids.					
14	I enjoy listening to radio/television Lessons					
15	Television/videos are exciting and interesting to acquire and use.					
19	I like PowerPoint than books.					
17	I am good at using a computer to type my work					
18	I like browsing the internet to learn and get more information					
19	I know how to make computer programs and how to use PowerPoint					

Any other (Specify)

.....

c) If your answer is no in (8a) give reasons why

.....



**SECTION C**

Respond to the following statements to the best of your knowledge by ticking in the appropriate box using the following keys: Strongly Agree (SA), Agree (A), Undecided (UD), Disagree (D) and Strongly Disagree (SD).

	STATEMENT	SA	A	UD	D	SD
20	There is not enough time to use the computer					
21	There is an unreliable power supply in the school					
22	We do not have enough time for using the resources					
23	We are not allowed to access school computers in our free time.					
24	Teachers are unwilling to use some resources, e.g. computers, charts, maps, Journals and PowerPoint.					
25	The school lacks technicians to assist with electronics resources.					
26	The Lab Technicians are incompetent with modern technology.					

27) In your opinion, what are some of the challenges facing you as a student when teachers use instructional medium/technology to teach?

.....

28) Suggest possible ways of overcoming the challenges you are facing.

.....

**Thank you**

## APPENDIX D

### HEADTEACHERS INTERVIEW SCHEDULE

The purpose of this interview is to find out challenges teachers and students are facing in the use of instructional Technology (Resources/equipment). All information provided will be highly confidential.

1. Sex: Male [ ] Female [ ]  
c) 29 - 33 years [ ] d) Over 33 years [ ]
2. Age: a) 19 - 23 years [ ] b) 24 - 28 years [ ]
3. What are the administrative challenges you are experiencing in your school as regards the use of instructional media/technologies?
4. a) Does your school have enough instructional media/technologies? And If yes, which kind?  
b. If No, which ones do you think you are missing for your school?
5. Who provides these instructional media and technologies?
6. How well is the school equipped with instructional technology for use in teaching and learning?
7. To what extent are your teachers trained to use some of the instructional media/technologies?
8. What are your views on the use of instructional technology for classroom teaching and learning of Students?
9. Given the current state of the use of instructional technology in schools, what are some of the challenges hindering its widespread use?
10. a) How have you tried to overcome some of these challenges affecting your school?  
b) How do your teachers improvise instructional media/technologies for teaching?  
c).In which subjects do they usually improvise?

c) How do the teachers involve students when they are improvising the use of instructional technology?

11 In your opinion what can you comment on challenges facing a) teachers, b) students in the use of instructional technology in the teaching and learning process?

12 How can school teachers and students overcome the current challenges facing the use of technology in schools?

