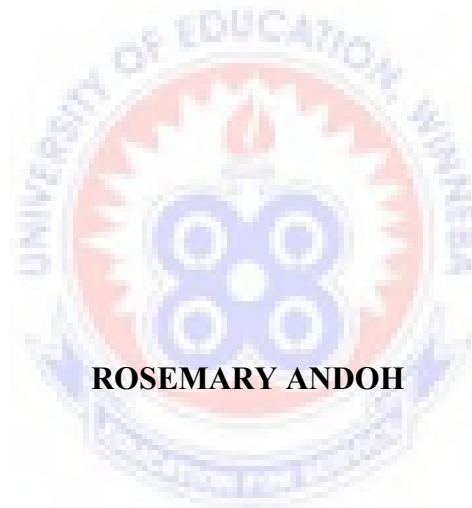**UNIVERSITY OF EDUCATION, WINNEBA**

COLLEGE OF TECHNOLOGY EDUCATION – KUMASI

THE USE OF INSTRUCTIONAL RESOURCES IN SELECTED PRIVATE AND PUBLIC SENIOR HIGH SCHOOLS IN THE KUMASI METROPOLIS.

ROSEMARY ANDOH

DECEMBER, 2016

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PUBLIC SENIOR HIGH SCHOOLS IN THE KUMASI METROPOLIS.

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of Arts (Educational Leadership) Degree

DECEMBER, 2016

DECLARATION

STUDENT'S DECLARATION

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

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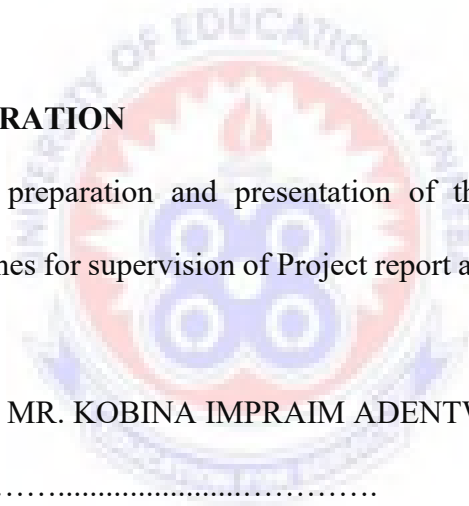
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SUPERVISOR'S DECLARATION

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

NAME OF SUPERVISOR: MR. KOBINA IMPRAIM ADENTWI

SIGNATURE:……………….....................…………

DATE:………………………….........................…

ACKNOWLEDGEMENT

DEDICATION

This thesis is dedicated to my parents; Mr. Emmanuel Andoh and Mrs. Cecilia Andoh.

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ABSTRACT

The use of instructional resources in teaching and learning plays very important roles in education all over the world. The aim of this study was to investigate the use of instructional resources and its impact on the academic performance of students in selected private and senior high schools in the Kumasi Metropolis. The research objectives were to find out the factors affecting the use of instructional resources for teaching and learning in Private and Public Senior High Schools, to assess the challenges teachers face in using instructional resources in their lesson delivery and to find out the extent to which instructional resources impact the performance of private and public senior high school students. The study employed the descriptive survey design combining both quantitative and qualitative methods of data collection. The main tool for data collection was questionnaire supported with observational inquiry. The target population in this study was all tutors and students in the private and public Senior High Schools in the Kumasi Metropolis. An equal number of 125 participants each were sampled from the public and private institutions. The sample of schools, teachers and students was selected using stratified random sampling techniques. The researcher randomly five public schools and five private schools. Descriptive statistics such as frequencies, percentages and means were used to analyse the data. The study found that teachers in the public and private schools agreed that physical infrastructure, class size and teacher qualification are factors that affect the use of instructional resources in teaching and learning. Further, it was observed that the public school teachers were more resourced than their private school counterparts and hence utilised instructional materials more in their teaching. Based on the findings, the study recommends that the ministry of education should place more emphasis on the training of teachers in using instructional media, and try to procure the relevant instructional materials to ease the work of teachers to enhance students' academic performance.

CHAPTER ONE

INTRODUCTION

Background to the Study

Instructional resources are important factors during the implementation (teaching and learning process) of the curriculum. They help the implementers to realize their goals and give guidance to the teaching-learning process which leads to realization of good students' academic performance.

According to Tamakloe, Amedahe and Atta (2005, p. 60), a teaching resource is "a material which a teacher uses to facilitate the learning, understanding and acquisition of knowledge, concepts, principles or skills by his/her students". Instructional resources in education include equipment and materials that are relevant to motivate, inform, instruct, and present the subject matter to the learner as well as making learning easier than it would have been without it. The use of instructional resources can be adapted to the ability and preferences of individual students and increase the amount of personalised instruction students receive.

Many students benefit from the immediate responsiveness of the interactions with instructional materials and appreciate self-paced and private learning environments. Moreover, the use of the instructional resources often engages the interest of students, motivating them to learn and increasing their independence and personal responsibility. Although it is difficult to assess the effectiveness of the use of instructional resources, some studies have reported that the use of instructional resources is successful in raising examination scores, improving students' attitude and lowering the amount of the time required to master certain materials (Kurland, 2008). While research results may vary greatly, there is substantial evidence that the use of the instructional resources can enhance teaching and learning at all educational levels.

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Dale, Finn and Hoban (2009) conclude that instructional resources when properly used can serve the following purposes:

- Supply a concrete basis for conceptual thinking and hence reduce meaningless responses from students.

- Provide a high degree of interest for students.

- Supply the necessary basis for developmental learning and hence make learning more permanent.

- Offer reality of experience which stimulates self-activity on the part of pupils

- Develop a continuity of thought.

For realization of good performance in a school, instructional resources must be put in place and used effectively in classroom practice. Todaro (1992), noted that the formal education system of a nation is the principal institutional mechanism used for developing human skills and knowledge. Education is, therefore, viewed as an indispensable catalyst that strongly influences the development and economic fortunes of a nation and the quality of life of its people. In this context, nations, organizations and individuals spend huge sums on the provision and consumption of education for the citizenry. In many developing countries including Ghana, formal education is the largest industry and the greatest consumer of public revenues (Todaro, 1992).

The priority of all countries, especially the developing ones, is to improve the quality of schools and the achievement of students since learning outcomes depend largely on the quality of education being offered (Barro, 2006). Barro noted that high quality education fosters economic growth and development. Appropriate use of instructional resources is one of the most important ingredients that help the school systems to achieve their objectives of realising

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good student academic performance in examinations. Education has been described as an important determinant of upward social mobility and eligibility for employment within the modern sector. Internationally, students' scores in examinations have been accepted and used as a proxy of achievements. Deolalikar (1999) argued that, the most important manifestation of schooling quality are literacy, measurable cognitive abilities and observable students' academic performance.

Research evidence suggests that the impact of educational inputs on schools, which include teachers, classroom size and its environment, instructional materials such as audio-visual materials, models, computer related media as well as school buildings and facilities cannot be overemphasized (Eshwani, 1996).

Statement of the Problem

The use of instructional resources makes teaching and learning less arduous. It enhances learners' ability to grasp what is taught with ease. Yet most teachers fail to apply the relevant teaching and learning resources in the instructional intercourse. Despite the efforts being made by schools and teachers to revamp performance of students, much is still left to be done (Ankomah & Kwarteng, 2010).

There has been growing concerns of apathy in teachers' attitude towards the use of teaching and learning resources in facilitating teaching and learning. This is due to the fact that preparation of teaching and learning materials is time-consuming and costly whilst inviting resources persons and organizing field trips also involve spending money. Lack of using teaching learning resource has brought about decreasing performance of students in both internal and external examinations.

Although most senior high school teachers are aware of the existence and importance of these teaching aids, the institutions seem to be exceptionally slow in acquiring and adopting the various materials to ease the job of their teachers. As such students are robbed of the quality tuition required for understanding of concepts and subsequent good performance in external examinations. There has been a persistent outcry from relevant stakeholders in the Ghanaian education system on the falling standards of education evidenced by students' low performance in external examinations. It is observed that peculiar problems associated with the use of instructional resources include unavailability, underutilization and inadequacy. According to Kalundo (2002), no matter how well-staffed a school appears to be, availability and utilisation of TLMs affect the overall output. Sarfo, (2005) found that, teaching and learning materials are inevitable if teaching and learning is to be successful. It is against this background that the researcher is seeking to investigate teachers' use of instructional resources and the influence of instructional resources on students' performance in selected private and public senior high schools in the Kumasi Metropolis. The researcher intends to find out whether these problems exist in the public and private senior high schools in Kumasi and how each of them tries to manage the situation.

Purpose of the Study

The purpose of this study is to investigate the use of instructional resources and its impact on the academic performance of students in selected private and senior high schools in the Kumasi Metropolis.

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Research Objectives

The study specifically seeks to attain the following objectives:

1. To find out the factors affecting the use of instructional resources for teaching and learning in private and public senior high schools.

2. To examine the challenges teachers face in using instructional resources in their lesson delivery.

3. To assess the availability of instructional resources in private and public senior high schools for use by teachers and students.

4. To find out the extent to which instructional resources impact the performance of private senior high school and public senior high school students.

Research Questions

The following research questions were formulated to guide the study:

1. What are the factors that influence the use of instructional resources in private and public senior high schools?

2. What challenges do public and private senior high school teachers face in using instructional resources in their lesson delivery?

3. Are instructional resources available for use by teachers and students in the public and private senior high schools?

4. How does the use of instructional resources impact the performance of students in private and public senior high schools?

Significance of the Study

Quality education is a major concern for all stakeholders of the educational sector. This study will be significant to stakeholders in the following aspects:

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i.   In the field of academia, it will serve as a reference material which will fill the knowledge gap on the use of instructional materials in senior high schools.

ii.   The study will also highlight the rate at which instructional resources are used both in the private and public senior high schools.

iii.   Policy makers and implementers will find suggestions and recommendations made in this study particularly useful since this study will provide information on challenges that both teachers and students encounter in the absence or otherwise of utilising teaching and learning resources.

Delimitations

For a research of this nature it is preferable for the researcher to have a larger sampling frame. However, the researcher restricted the sampling to the Kumasi Metropolis and further selected some private and public senior high schools in the Metropolis. This was due to the fact that a larger sample would have made the study impractical considering the time and resource constraints of the researcher.

Organisation of the Study

The study is structured into five sections or chapters. Chapter one gives a general introduction and background to the research and provides a statement of the research problem. An exhaustive review of related literature is given in the second chapter of the study whilst the third chapter presents the research methodology employed in the study. Chapter four presents a discussion of the results and findings of the study. In the final section of the study, chapter five, the researcher summarises the findings from the study and draws conclusions from them. Recommendations regarding the findings are also given under this section.

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CHAPTER TWO

LITERATURE REVIEW

Introduction

The purpose of this study was to examine the effective and efficient use of instructional resources in both private and public senior high schools in the Kumasi metropolis. This chapter presents a review of literature relevant to the study. The literature was reviewed form textbooks, journals articles, other PhD and masters dissertations and internet sources. The review was done in accordance with the study objectives and covered such themes as the meaning and overview of instructional resources, classification of instructional resources, importance of instructional resources and availability and use of instructional resources. Procurement of instructional materials, storage of instructional materials and finally, a summary of the literature are all covered under this chapter.

Meaning of Instructional Resources

The terms instructional resources and teaching/learning resources/materials have been variously used interchangeably by different authors. Bishop (1985) refers to teaching learning resources as all the things teachers are likely to find useful in their teaching. These could be collection of books, reference materials, maps, diagrams, newspaper cuttings and anything of value to the teacher. According to Onyango (2001), material resources include those items so designed, modified and prepared to assist teaching/learning operations. He gives examples as; textbooks, reference books, teachers guides, manuals, magazines, charts, maps, raw materials such as wood and metal.

Ayot (1986) refers to instructional resources as teaching resources. He calls them teaching tools that help in providing data that students use in learning. Beswick (1977) when referring to resource-based learning states that a resource includes anything which may be an object of

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study or stimulus for the learner. He gave examples such as books, pictures, diagrams, maps, charts and newspapers. Kemp and Dayton (1985) as quoted by Kinyua (2007) used the term instructional media to refer to audio-visual and related materials that serve instructional functions for education and training.

Instructional resources which are educational inputs are very vital. They play a key role in the process of teaching and learning. According to Fans and Moldstad (1963), a modern education programme is impossible without appropriate teaching and learning materials. Use of text books for example is unavoidable if effective teaching and learning has to take place. Dale (1970) posits that learning is a process in which the concrete and the abstract interact. He, therefore, asserted that teaching and learning resources which include ICTs ought to be used in the teaching and learning process.

Instructional Technologies

There is no single precise definition of instructional technologies; however, according to Dahiya (2004), the term "instructional technology" to many suggests a world of whirling gears, tools and machinery, an assembly line, time clocks, computers, depersonalizations. Indeed some teachers, administrators and curriculum specialists consider technology only as "machines". Omwenga (2008) observes that, once one talks of technologizing the teaching and learning, it is received with a low profile.

According to Heinich, Molenda & Russell (1989), instructional technologies is a complex and integrated process involving people, procedures, ideas, devices, and organization, for analyzing problems and devising, implementing, evaluating and managing solutions to those problems in situations in which learning is purposive and controlled. It is the purposeful, orderly, controlled sequencing of experiences to reach specific educational goals where teaching-learning devices are used for education instruction purposes (Locatis and Atkinson 1984).

Grabe and Grabe (1998) view them as 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, skills, models and other people knowledge in a specific subject area from which students might learn. Romiszowski (1974) calls these instructional technologies as teaching aids which must aid the teaching of a topic. They are rich text materials that combine multimedia such as print, models, mockups, filmstrips slides, transparencies, audio and video into one well thought-out and designed package (Roblyer, 2003). 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. Hoban (1962: 201) 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…."

Wagner (1961) observes instructional technology as "the fulcrum in which the balance of the whole educational system of the future may rest, from buildings to books, from the teachers to the teaching machines, from curriculum to classroom." Kemp and Dayton (1985) refer to it as instructional technology. The term instructional technology refers to audio-visual and related materials that serve instructional functions for education and training (Johassen, 2000). Whereas Walton and Ruck (1975) refer to it as instructional resources which are planned to contribute to the education enterprise.

Hooper and Reinartz (2002) argue that these days, instructional technology refers to the contemporary computer software that contains combinations of texts, graphics, animation, audio and video. They further acknowledge that instructional technology refers to several different classes of software that are used to achieve clearly defined educational goals.

Muchiri (1997) looks at technology as online resources which offer teachers access to a vast and diverse collection of educational materials, enabling them to design curriculum that best suits the needs of their learners. Mehra and Mital (2007) asserts that it is integrating technology into teaching-learning transaction. Duffy *et al.,* (1993) refers these as constructivist approach verse Intelligent Teaching and Methodologies. Brown *et al.,* (1973) defines instructional technologies as a systematic way of designing, carrying out and evaluating the total process of teaching and learning, using a combination of human and non-human resources to bring about effective instruction. One can therefore generally define instructional technology as "a combination of resources including people, materials, machines, facilities as well as purposes and processes that support effective and meaningful facilitation of learning".

Brief History of Instructional Technologies

Instructional technologies have been used for long. That is they have travelled a long way from military through industry to higher education, just to arrive at primary and secondary education virtually intact, and therefore have been looked with keen interest by educators (Azeb, 1975). According to Seattler (1990), use of instructional technologies can be traced years back when tribal priests systemized bodies of knowledge, and early cultures invention of sign writing to record and transmit information. It is a product of a great evolution consisting of trial and error, long practice, imitation and sporadic manifestation of unusual individual creativity and persuasion. Four important developments have created the need for instructional technology namely:

i) establishment of training programme in military and industries which produced unprecedented demand for an effective and successful technology of instruction,

ii) the application of this technology of instruction which was based on pre-war scientific research which proved very productive under controlled environment as observed by Stabler (1969),

iii) the emergence of an official military policy which encouraged the production of a wide variety of instructional material and abroad use of instructional technology and finally,

iv) the allocation of almost unlimited financial resources available to the development of the programme. The new concern of education is the scale on which they are being used, their variety and the complexity of the learning systems into which they are being fitted.

According to Bogonko (1992), the concept of using resources can be traced back to the indigenous African education. This is because indigenous African education was resource based, localized and practical. Children learnt through play and recreational activities such as wrestling for the youth. Values, knowledge and skills of the society were transmitted by word and apprenticeship. The focus of indigenous African education was learning by doing as well as being expository in nature. One major challenge faced by early schools in the use and acquisition of resources was relying upon spoken word from a school master as both print and non-print media were non-existent or scarce hence making him the sole source of information (Wiman, 1969).

When the Christian missionaries and merchants made contact with the coast of West Africa in the 14th century, they introduced western education which was associated with modernization. The same was emphasized by colonialists when they later came in the 17th century. Western education emphasized both academic and vocational education. This meant that indigenous African education had to undergo some changes to cope with challenges of development and modernization (Bogonko, 1992). The traditional methods of education were to be modified and

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improved so as to bring schools to close harmony with the requirements of a modern society (Mukwa, 1979).

In order to realize this goal, several countries turned to the application of the process and instructional development involving the use of instructional technology in education to conform to changes with time. Vygotsky (1978) observes that:

> Many courses can combine old and new technologies and thus create a more effective and dynamic classroom. The successful combination of old and new means blending the delivery of class materials and creating "rich-text materials"… Rich text instructional technologies are those that combine multimedia such as a print, audio and video into one well thought out and designed package with a full consideration each educational technology can be for what it does best.

Traditionally most instruction in the elementary, secondary and higher education involved the presentation of information whereby the role of the teacher was of "a giver of information" observed Gerlach and Ely (1971). The process begun with the teacher as the sole source of wisdom and if all went on well the process ended with the student as a passive receiver. The teaching process here was transmission of the material from the instructor's note book to the students by passing in both minds (Vygotsky, 1978).

Over the years, the traditional role of the teacher in the classroom has changed. New technologies for learning have become available many of which are designed for individual use (Hung & Khine, 2006). The vision for technology-supported reform-oriented classroom is one in which student groups work on long-term, multidisciplinary projects involving challenging content that is interesting and important to them with the support to instructional technology (Newby *et al.* 2006). Making this vision a reality poses many challenges such as providing adequate technology access, equalizing technology access involving a majority of

teachers and providing technical support for technology use and maintenance (UNESCO, 2008). However, when instructional technologies are provided, the teacher becomes the facilitator of a learning experience. He/she must learn how to use technology as part of instructional technology not merely to enrich or supplement the present methods of instruction but giving high quality technologic experiences to students who would have less access to technology in their homes. Use of instructional technology form a vital role in education. According to Gerlach and Ely (1971) good teachers have been using instructional technology for centuries.

Classification of Instructional Resources

Instructional resources have been classified by different authors as seen below; Travers (1973) as quoted by Kinyua (2007) groups teaching/learning resources as follows:

   i.   Non projected materials: these include books, photographs, drawings, charts, maps, chalkboards, flannel boards etc.

   ii.   Projected materials: these include slides, filmstrips, overload transparencies, motion pictures.

   iii.   Audio materials: lectures, audio tapes, compressed speech, radio, telephone, television and others.

   iv.   Real and three dimensional materials; models, globes, sculptures, demonstration, field trips, resource persons.

Dale (1969), on the other hand, categorizes teaching/learning resources into three groups as follows:

   i.   Visual materials- which include, books, pictures, photographs, flash cards, maps, posters, chalkboards, drawings, cartoons and so on.

ii.   Audio materials – these include radio, tape and disc recordings, telephones and sound distribution systems.

iii. Audio – visual materials – these are films, television, video tapes, printed materials with recorded sound and demonstrations. Dale as quoted by Kinyua (2007) summarizes all instructional materials using a pictorial device which he calls "the cone of experience".

Importance of Instructional Resources

According to Coombs (1970), education consists of two components. He classifies these two components into inputs and outputs. According to him, inputs consist of human and material resources and output are the goals and outcomes of the educational process. Instructional resources which are educational inputs are important to the teaching of any subject in the school curriculum.

Wales (1977) is of the opinion that the use of instructional resources would make discovered facts glued to the memory of students. According to Nasibi and Kiio (2005), learning resources are also commonly known as teaching aids, educational media or instructional materials. They maintain that these resources are important in education because they motivate learners by linking instructions with reality. Both Nasibi and Kiio note that instructional materials also encourage learners to utilize more than one sense hence increasing their attention and retention capacity. A textbook for example, remains after the teacher as the pupils' companion throughout the course. Dale (1969) posits that when a school provides rich experiences by using varied instruction materials, it will promote effective learning and carry on the kind of education that fosters "permanent learning". Ng'ang'a (2008) concurs with Dale by saying that

teaching/learning resources enhance effective learning. Simiyu (2007), on the other hand, posits that students' attention is sustained through the use of instructional resources.

Ogbandah (2008) in his study on an appraisal of instructional materials, used to educate migrant fishermen's children in River State, Nigeria found that instructional materials extend the range of experiences available to learners. He notes that they supplement and complement the teacher's verbal explanation thereby enriching learning experience. He further noted that instructional materials motivate learners to learn more, help to broaden their knowledge and increase their level of understanding.

On the other hand, he found that instructional materials help the teacher in overcoming physical difficulties in delivering his or her lesson. Jekanyinfa (1999) in her study on effects of instructional resources on academic performance of students in history in Nigeria notes that, both adequate supply of teachers and material resources greatly influence students' academic performance in history. He therefore, insists that it is highly essential to provide adequate and relevant materials for teaching and learning not only of history but of all other subjects in the curriculum.

Momoh (1980), Moronlola (1982), Pepoola (1990) and Akolo (1978) all of Nigerian states as quoted by Jekayinfa (1999) researched on the effects of instructional resources on academic performance and they all had a common conclusion that instructional/material resources have a significant effect on student's achievement in all subjects. Their studies revealed that achievement of students in schools with adequate material resources were higher than those of students in schools with inadequate material resources.

On the other hand, Fagbamiye (1977), Akintayo (1980), Ukuje (1970) and Fafunwa (1969) all quoted by the same scholar researched on the prime importance of human resources and particularly teachers in the acquisition of instructional materials and other school facilities. They note that schools with stable, experienced and qualified teachers usually have better school facilities in terms of school buildings, books, and equipment than those schools which have difficulty in attracting experienced and qualified staff (Jekayinfa, 1999:3).

In Africa, several scholars have researched and recognized the importance of resources in the teaching and learning process. Most of them have written on the effects of these resources on academic performance in schools. Eshiwami (1988) indicates that school furniture in particular desks, chairs are important in the implementation of the curriculum. He also notes that resources like text book, library and laboratory facilities were important determinants of pupils' performance.

Kalundo (2002) maintains that teaching and learning materials should not only be provided for schools, but they should also be relevant and they should be used effectively if the desired quality of education is to be achieved. Marugu (2008) in her study on factors influencing academic performance in public and private schools in Thika Municipality found that poor academic performance in primary schools is caused by interplay of factors. These include, school related factors like inadequacy of classrooms, textbooks, furniture and class sizes.

Mesis (2006) in his study on constraints in effective resource utilization by teachers in primary schools in Bomet District Kenya, confirmed that it is true that the use of learning resources remove monotony of speech in a teaching/learning process. That resources are needed to assist

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in teaching certain concepts which could have been difficult to teach theoretically. He further notes that resources bring clarity of meaning of words and make learning real and a reality. Digolo (1997), on the other hand, regards teaching/learning resources as basic requirements in an instructional process. She further quotes Romiszowski (1994) that teaching/learning resources are referred to as "Aids to teaching" implying that these resources are part and parcel of the teaching process. Mungai (1992) maintains that resources have been used from time immemorial by great teachers like Plato, Erasmus, Comenius and even Jesus Christ. She posits that even today, teaching/learning tools make teaching effective and interesting.

The three scholars, Mesis (2006), Mungai (1992) and Digolo (1997), agree with other researchers that instructional resources facilitate the understanding of difficult concepts and ideas. That they make learning an interesting and fulfilling experience which makes it easier for the learners to follow, understand, respond to and retain the content of the lesson. Poorly equipped schools, lack of suitable teaching aids, poor facilities all lead to poor performance (Ranju, 1973). Among other studies undertaken on factors influencing academic performance are those by Malau (1985) and Ololo (1998) among others as the list is endless. Their studies revealed that school resources including textbooks are significant determinants of academic performance.

In summary, Oladipo (2001) asserted that instructional materials are important tools for enriching, visualising, simplifying, transmitting and accelerating the teaching and learning process thus enhancing students' academic performance. He further said that, effective instruction with instructional materials in the classroom requires careful planning by the teacher. This implies that the teacher should take time to apply special knowledge and skills with respect to selecting, producing and using different kinds of instructional materials.

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Characteristics of Instructional Materials

Odukwe, (1983) saw learning materials as essential part of practical teachings as such, in classrooms, pictures, charts and drawings should also be clear and neat. Odukwe added that, it is not good for a teacher to plan a lesson without some ideas of how he/she will stimulate or motivate his/her students by using pictorials illustrations (pictures, diagrams and apparatus) or materials illustrations. Olaitan, (1984) stressed that graphic materials to be used in classroom should be simple, attractive, large enough and not to be crowded with illustrations and colours. Ogundele, (1987) pointed out that good teaching aids must have the following characteristics. This is because, the importance of any instructional materials lies in its ability to:

a. appeal to the senses (sound and sight)

b. attract and retain attention

c. focus attention on essential elements to be learned at the proper time

In order to achieve the above objectives, any materials to be used as teaching aids must satisfied the following characteristics.

Flexibility: In the college or university, the teacher has been taught different ways of teaching hence, while in the classroom a good agricultural science teacher will attempt to teach his/her lesson using a variety of methods and materials. He/she should therefore, select or construct teaching aids that can be instantly modified to suit change in the approaches to construction.

Colour: Since pupils are attracted by bright colours, these should be used in the preparation of teaching also however, too much brightness should be avoided since it may distract students' intention from the objectives of the lesson and the instructional materials.

Simplicity: Teaching aids must be simple and present only a fair ideas at a time. This is because, students cannot comprehend complex ideas presented to them at a short-time. If

pictures are used, they should illustrate only a very far words or actions. If more detailed pictures are used, student will not know that they are to notice.

Visibility: All the smallest details to be used in an instructional material, should be large enough to be seen by every student in the class. So, such should be placed conspicuously in front of the class to present a clear view to every student.

Anyawu (1989) added that the characteristics of good teaching aids can be seen under the following:

a. Sufficiency: teaching aids must be sufficient enough for use.

b. Writing and Lettering: The Lettering or writing must be bold, clear, neat and readable.

c. Attraction: That the aids must be neat and attractive to arouse the interest of students. All the lettering must be bold and attractive.

d. Purpose: The information in the aids must help the students in learning and must be relevant to the lesson.

e. Accuracy: They must be accurate in content and language. There should be no mistakes of facts or spelling, that is, misinformation.

f. Clarity: All details in the aids e.g. drawings, pictures etc., should be easily seen by the students farther away from it. Aids such as radio, tape and television should be clear enough to be heard by all students.

According to Farrant (1980), the characteristics of instructional materials (teaching aids) may be grouped into nine (9) categories – A, B, C as follows:

A	B	C
1. Accurate	4. Bold	7. Clear
2. Appropriate	5. Brief	8. Clean
3. Artistic	6. Bright	9. Carefully handled or finished

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A: Accurate – Information presented on every visual should be up to date in every aspect.

Appropriate: The visual aids for use, should be relevant to the topic as well as to learners. Visual aids should be used at the exact time when they will convey the right meaning they intend to convey.

Artistic: Pictorial information should be realistically produced to the extent that it will make the same meaning of impression to every learner. It should be well produced.

B: Bold: Information should be boldly presented so that the viewers or learners can see them clearly. Small pictures may not be visible from the back of the large class.

Brief: Only essential information need to be inserted in the visual aids to avoid over crowdedness and irrelevance. As a rule, main ideas should be few and stand out clearly for effective communication.

Bright: Bright vision may brighten the learner view of contents while dull ones may cause a dull effect that may lead them to dozing off.

C: Clear: The visual aid for use, should be clear so that every learner or viewer can quickly grasp its content. "A clustered chart is a confusing chart, if there is a lot of information to convey, develop a series of simple chart, rather than a single complex one" (Abdullahi, 1985).

Clean: A dirty work is unattractive and put off learners. Visuals should be clean and well cared for to avoid damages.

Carefully Handled or Finished: The planning and production of teaching aids, should be carefully carried out to give a deserved impression of good visual. Finally, a good teaching aid will provide adequate interaction.

Factors Affecting the Use of Instructional Materials

Teaching at any level requires that students be exposed to some form of simulation. Ikerionwu (2000) refers to instructional materials as objects or devices that help the teacher to make learning meaningful to the learners. Instructional materials which are educational inputs are of vital importance to the teaching and learning of any subject in the school curriculum. Wales (1975) opined that the use of instructional materials would make discovered facts glued firmly to the memory of students. A teacher who makes use of appropriate instructional materials to supplement his teaching will help enhance students' innovative and creative thinking as well as help them become enthusiastic (Ekwueme and Igwe, 2001).

In determining the instructional materials to be used for the conveyance of information in teaching and learning, a number of factors come into play in determining which resources will be appropriate and suitable. The following factors are outlined by Bakare (1986) as affecting the use of instructional materials:

a. Nature of the subject matter and the objectives to be attained: If the subject matter is such that is diversified, it may involve the use of more than one type of instructional material to achieve its objective.

b. Number of learners/students involved: If the number of learners to be taught are up to one hundred (100), it would be more logical and efficient to use microphone (sound projector) for the presentation of information.

c. The space of time available: Time is always limited and has its effect upon the kind of instructional materials used. If there is ample time, the agricultural science teacher is more likely to use real objects, discussion, farm visits and other techniques that encourage maximum participation. But when time becomes a limiting factor, the chalk and talk would be preferred.

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d. Facilities and materials available: The kind and extent of physical facilities and the instructional material available, including community resources, affect the choice of instructional materials that can be used.

e. Interests and ability of teacher: Most teachers have personal preferences and more security conscious in using selected instructional materials. Other things being equal, the teacher should use the methods that he/she likes or uses best. This does not mean that he/she should not be sensitive to other development that supplement or improve upon the instructional materials he/she frequently uses.

f. Effectiveness of instructional materials: All teachers should evaluate instructional materials used in terms of the objectives to be accomplished, and the situation at hand, and choose the one that will best meet the goals of the programme.

Balogun (1986) explained that school environment as the physical and material resources otherwise known as infrastructural facilities available to teachers and students to facilitate their teaching and learning. If the school environment is not conducive it can affect student academic performance negatively.

Fakomogbon (2000) observed that one of the causes of failure in Nigerian Secondary Schools is inadequate school resources. He further explained that it cannot be over-emphasized that the provision of adequate resources is a prerequisite for adequate performance in schools. Most of the schools lack necessary infrastructural facilities required for effective learning.

Criteria for Selecting and Evaluating Instructional Materials

According to Akolo (1981), teaching aids were meant to be used when necessary. They are not to be used for the sake of using alone. The following, are the criteria to consider in selecting teaching aids.

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Purpose: Aids should not be used only because they are attractive or because students will like seeing them. Teachers should have definite objective in mind before thinking of any aid. The objective to be achieved should be a measurable and quantifiable outcome. This could be manipulative, informative, or attitudinal which are usually based on a particular domains of learning such as cognitive, affective, and psychomotor.

Availability and Durability: Instructional materials should also be selected for use considering its availability in adequate number in the school to facilitate its functional use, practical durability of the materials and equipment, and face-validity of the materials. Other considerations are given to up-to-datedness of the materials, case of management and operation, familiarity, and replicability of its use.

Appropriateness: In selecting instruction materials for use, consideration is given to time, space and when to use the materials for effective and efficient use of instruction materials.

Cost-effectiveness: The economy and cost-effectiveness is one of the pragmatic determinants of instructional materials selection. This include the cost-benefit analysis, its availability, and viability, for a particular learning situation. This is to ensure the integration of such materials to facilitate learning and produce replicable result.

Procurement of Instructional Resources

The procurement process involves four stages, namely; selection, ordering, receipt and payment. The overall principles of the textbook policy are accountability, transparency and sustainability of the textbooks.

a. Selection

Selection of instructional resources is a crucial exercise. However, as Ayaga (2010) says, choosing the most effective resources from among many alternatives is one of the perplexing

problems of educational practitioners. He further explains that this is because in any learning or teaching situation, there are a multitude of interactive factors which make the selection process complex.

The Ministry of Education, (2003) gives guidelines to follow when selecting books as follows:

i. Language suitability for the school

ii. Should display activities which are appropriate for the study level and its environment

iii. Examples and content should be relevant to the school.

iv. Should have suitable illustrations

v. Appropriate content level and approach for the school

vi. Cost should be fair

It is also good to note that certain laid down factors are considered in selecting a good bookseller.

b. Ordering

This is a very important stage in the procurement process after selection. Careless ordering may cost the school dearly as it may result in their receiving wrong titles. While ordering schools keep to the budget and select only the MoE approved books (MoE, 2003).

c. Receipt

The school should put in place a school instructional committee who will check to verify that the books delivered are as per the order in terms of quality and quantity.

d. Payment

This should be done after the receipt of instructional materials and after thorough scrutiny.

Availability and Use of Instructional Resources

The availability of instructional resources is vital in the support and advancement of education. Reviewed studies have shown that learning without instructional resources is impossible. Bishop (1985), sheds light on the fact that most developing countries have made teaching and learning resources available in teacher colleges in form of different collections. He says, teachers are supposed to select what they are likely to find useful in their teaching. He goes ahead to say that when a teacher has a tool at hand, his confidence, effectiveness and productivity increase.

Kimui (1988), on the other hand, observes that schools function as though print media is the only resource that can be used. Furthermore, she observes that the chalkboard and lecture method have dominated schools, meaning that teachers may not be aware of all the variety of teaching/learning resources available in schools. The Ministry of Education (2003) gives views on the same, that many teachers do not know what instructional materials are available for use.

Challenges of Using Instructional Resources

According to Afolabi *et al.,* (2006), teaching can only be effective when adequate and relevant instructional materials are used. Many educators and researchers have reported the importance of instructional materials in teaching. Grant (1978) noted that teaching and learning cannot be effective without adequate and relevant use of instructional materials. Inadequacy of instructional resources can be a great challenge to the teaching and learning of mathematics. Schramn (1977) referred to instructional materials as basic channels of communication (of

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ideas and concepts) in the classroom for the purpose of bringing about effective teaching and learning. There was need to establish the availability of these materials in our schools and how effectively they were used.

Abimbade (1997) found out that the use of instructional resources in teaching and learning makes students to learn more and retain better what they have been taught and that it also promotes and sustains students' interest. It also allows the learners to discover themselves and their abilities. Schramn (1977) notes that instructional materials enrich learners' knowledge and reinforce verbal instruction. This is because learning is more effective through seeing and touching than through hearing only.

Research report by Afolabi (2008) indicates that availability of instructional materials and ability of teachers to use them are vital determinants in the selection of the teaching methods to be used by teachers and consequently academic achievements. The ability to use instructional materials in teaching mainly depends on training which has to be continuous in the profession. Professional development can be done through INSETs where teachers share experiences and are continuously exposed to new ideas that keep them abreast with developments in the teaching profession.

Grabe and Grabe (1998) notes that if teachers want to search for more effective learning experiences for their students, they need to have some general ideas about productive learning experiences that integrating instructional technology enhances. Misoy (1987) reveals in her study that instructional technology for teaching and learning process was either inadequate or unavailable. 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.

Omwenga (2001) observes that while many teachers complain about lack of instructional resources, they are guilty of not using the few that is provided to them. Ogechi (1992) and Orina (2001) 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 technologies. Maleche and Krystall (1974) argue 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 useful form for some purpose.

These views are further supported by other scholars who note that many instructional technologies do not have staff to cope with the use and failure to do so reduce uses of the materials. A survey carried out in (2003/2004) as cited by Lumumba (2008) reveal that of 70% secondary schools required the need to establish standard local area networks (LANS) in order to improve on sharing of learning resources. To add on the above, there is limited capacity for effective the use and maintenance of instructional technology in the learning institutions (Dahiya, 2004).

Brown *et al.,* (1973) for their part argue that Instructional technology goes beyond any particular medium or devise. In this sense, instructional 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 and skilful use of the products of instructional technology are basic.

However, in the current GES and MOE syllabus for senior high schools, teachers have a lot of content to cover within limited time allocations. Teachers continually complain of inability to cover the syllabus in time and adequately prepare students for the West African Senior Secondary Certificate Examinations (WASSCE), yet the use of instructional technology can help them reduce the length of time for instruction as most instructional technologies contain and can assist in presenting a lot of content in summary form (Kemp and Dyton 1985). The use of instructional technologies for teaching is a principal role for any person who teaches (Grabe and Grabe 1998). A lot of research has been done on instructional technology in teacher education curriculum such as Shanguya (1995), Kimui (1988) and Omwenga (2001), but not the challenges facing teachers and students in the use of instructional technology in secondary schools which the current researcher seeks to investigate.

Some of the factors presented as challenges facing teachers in their use of instructional resources according to Omwenga (2001) were the lack or unavailability of the appropriate relevant resources, unskilled staff in the handling and effective utilisation of such resources, improper storage and low durability of available resources. Dahiya (2004) also mentions expensive nature of resource materials, the preparation and acquisition of the required study materials. He further opined that educational administrators/leaders are unwilling to procure these materials because of their high cost in nature.

Another challenge reported by Shanguya (1995) in his study of mathematics teachers and their use of instructional resources was that, instructional resources when not appropriately selected and effectively use, has the great tendency of hindering rather than aiding student learning. He therefore advised caution in the selection, preparation and utilisation of instructional resources in the classroom for the benefit of students.

Improvisation in the use of Instructional Resources

Schools may not always be in a position to provide all the teaching materials that teachers would require. In education, we are in the business of learning and it is mandatory for teachers to do whatever is needed using whatever materials and resources they can to best meet students' needs, whether it involves technology or not. As the proverb goes "necessity is the mother of invention" teachers have to use their innovative skills to improvise instructional resources for effective teaching/learning. A teacher using a learning activity should be well versed with knowledge on how to back it up with the right and relevant media. Concrete examples should always be provided if possible. The teacher also needs to know how every media used enhances learning.

To cope with the challenge of inadequate instructional resources, for example mathematics teachers can use improvised media to teach abstract mathematical concepts. Some common types of improvised media include; playing cards, geo boards, students shoes, school tank, coins and currency notes, dice, school's flag post, strings, match sticks, marbles, beans and maize seeds, stair cases, classroom floor and walls and many others. Strings may be used to teach sequences in the following manner: learners are divided into groups of four each and each group given one piece of string. They are then asked to fold and cut the pieces of string at

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the centre successfully and fill in a table of two columns the number of folds and the number of pieces of strings generated. The teacher may then bridge to the concept by asking the students to make a deduction from the list of numbers generated by the number of pieces. He/she may then define a sequence using the pattern formed.

Coins and dice may be used in teaching combined events in probability where students are put into groups of three. In one group a student tosses the coin once, one reads the observation while the third records. In another group, one student rolls a die the other reads the observation and the other records. Using the sample space, students find the probability of getting a head and a six. Coins may also be used to teach Binomial expansion where students toss a coin four times and record 16 different ways in which a sequence of heads (H) and tails (T) could occur. Four heads may occur once, 3 heads 4 times, 2 heads 6 times, 1 head 4 times and 0 head once. The pattern formed is thus 1, 4,6,4,1. The number of arrangements corresponds to the fifth row of Pascal's triangle. The teacher may then ask the students to investigate arrangements with a coin tossed twice, thrice and five times and repeat the procedure (Kamau, 2004).

Indirect proportionality may be taught using manila sheet, masking tape and meter rules. Learners subdivide a manila sheet strip into six equal parts. They shade one part to show a person's fraction of work in one day. They then subdivide another manila sheet same size as the first one into six equal parts. They shade two parts to represent a second person's fraction of work. Finally they combine the two persons" fractions of work to find amount of work they do in one day. Learners may use the combined answer to find the time taken to complete the task.

Theoretical Framework

According to Orodho (2009) the importance of a theoretical framework is to bring order, unity and simplicity to what is being investigated, it helps to clarify the statement of the problem and enhance the development of explanation. This study was guided by Dale's (1954), theory of instruction. The theory is based upon the principle that all teaching can greatly be improved by use of materials because they make teaching experience memorable and when used intelligently, promote the most effective kind of learning. Dale posits that learning is a process in which the concrete and the abstract interact. He therefore found that visual materials which include, books, pictures, photographs, flash cards, maps, posters, chalkboards, drawings and cartoons, ought to be used in teaching. In addition, audio materials which include radio, tape and disc recordings, telephones and sound distribution systems and finally, audio-visual materials which are films, television, video tapes, printed materials with recorded sound and demonstrations supply concrete basis for conceptual thinking and hence reduce meaningless words or responses of students. Dale as quoted by Kinyua (2007) summarized all instructional materials using a pictorial device which he calls "the cone of experience". According to Dale (1969), a school will become an interesting place if it proves to be a place where students have interesting experiences where they see, hear, touch, taste, plan, make, do and try. He says when a school provides many of these rich experiences, it will promote effective learning. He further explains that this will carry on the kind of education that fosters "permanent" learning. Monotony can be a powerful deterrent to learning, human beings seem to need variety and change in order to get full 'flavour' out of life's experiences (Dale, 1969). With this, Dale advocates for variety of instructional materials in a teaching situation for they can accomplish the following:

i) They offer a reality of experience which stimulates self-activity on the part of the pupils.

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ii) They develop a continuity of thought this is especially true of motion pictures.

iii) They contribute to growth of meaning and hence to vocabulary development.

iv) They add a high degree of interest and involvement among the pupils.

The poster as a teaching resource for example, can be used to create a learning atmosphere to provide general motivation, while the chalkboard can be effectively used for highlighting critical questions or captions in a unit under study (Dale, 1954). Dale stresses that these materials should be properly prepared and properly used in order to produce the best result. This theory, therefore, was significant to the study because it recognized the important role played by instructional resources and materials in the process of teaching and learning. Its main emphasis was on efficient use of instructional resources in order to promote effective and permanent learning.

Empirical Studies

The researcher compared past related studies based on the use of instructional resources in public and private schools and their impact on students' academic performance. According to the National Center for Education Statistics (2007), the defining distinction between public and private schools is their different sources of support. Public schools depend primarily on local, and government funds whilst private schools are usually supported by tuition payments and sometimes by funds from other non-public sources such as religious organisations, etc. The NCES posit that, on certain measures, public school teachers appear to be more qualified than private school teachers in terms of their education and years of teaching experience.

In 2015, Adipo conducted a study on the impact of instructional materials on academic achievement in mathematics using public and private primary schools in Siaya County, Kenya. The target population was 20564 Children and 696 Standard Four teachers and sample size

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comprised of 392 children and 18 teachers of mathematics. The findings from the research project indicated that teachers have undergone an education system that had enlightened them on need to know when, why and how to use and manipulate instructional materials effectively in the classroom as well as opportunities to observe; first-hand impact of allowing learning through exploration with concrete objects. According to findings, it was seen that the public schools had mean and standard deviation of 52.70 and 13.57, respectively, while the private schools had a mean and standard deviation of 74.30and 8.74, respectively. The difference in performance of children in private schools and those in public schools was found to be statistically significant (t (8) = -5.482, p = .004, two tailed). This suggests that children who are taught mathematics using instructional materials perform better than those who are only taught mathematics using abstract mathematics symbols only. The difference in performance is due to interventions (instructional resources) used at the private schools. Instructional materials had more impact in achievement in measurement. Further findings show that children in private schools scored higher marks when they used place value blocks than children in public schools where instructional materials were not applied.

Barlo (1981) carried out a research study tilted: "The availability and utilization of instructional materials in the teaching of agricultural science in selected public secondary schools in Lagos State". The target population was two hundred and fifty (250) secondary schools out of which, twenty-five (25) secondary schools were selected as the samples using systematic sampling. The instrument used in collecting the data was questionnaire. Five (5) null hypotheses were stated which were tested using the Average Weighted Response (AWR) test statistics at 1.00 level of significance. All the five (5) null hypotheses were accepted. The results showed that the teaching of agricultural science in selected secondary schools depended on the availability and utilization of instructional materials which had negative relationship in the teaching of agricultural science in selected secondary schools in Lagos State.

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Ozorehe (1998) also carried out a research study tilted: "Utilization of teaching aids in the teaching of vocational agricultural science in secondary schools in Osun State". The target population was two hundred and thirty-one (231) secondary schools out of which fifteen (15) secondary schools were selected as the sample by simple randomization. Five (5) null hypotheses were stated which were tested using correlation coefficient test statistics at 0.68 level of significance, and all the five (5) null hypotheses were rejected. The result showed that about 60% of the respondents made use of the teaching aids effectively which had positive relationship in the teaching of vocational agricultural science in secondary schools in Osun State.

Summary

The literature reviewed has shown that instructional resources such as textbooks, charts, diagrams, are significant determinants of pupils' performance. They play a vital role in the teaching and learning process. The researcher also noted that the acquisition, use, storage and maintenance of instructional materials are guided by a policy on textbook procurement and supply for schools.

The researcher did not come across a similar study conducted in private and public secondary schools in the Ashanti Region of Ghana. Furthermore, most researchers have studied factors influencing performance, effects of resources on academic performance, availability of resources in schools and management of resources without looking into how the available resources are used by both teachers and pupils in schools. This study therefore, fills the gap by examining efficiency in the use of instructional resources in private senior high schools in the Kumasi Metropolis of the Ashanti Region of Ghana.

CHAPTER THREE

RESEARCH METHODOLOGY

Introduction

This chapter presents a discussion on the methods and methodology employed by the researcher in the conduct of this study. Methods in research refers to the range of approaches used to gather data which provides basis for inference and interpretation, explanation and prediction. On the other hand, methodology is a description of the approaches and kinds of research paradigms used in a particular research (Kaplan, 1973). This section therefore gives a description of how data was collected, discusses the research design, the population, sample and sampling procedure, data collection instruments and techniques, and the instruments used in the analysis of the data collected.

The Research Design

This study was intended to explore the use of instructional resources in private and public senior high schools and its impact on students' academic performance. Thus, it was imperative for the researcher to employ the descriptive survey design because it allows for the gathering of large-scale data upon which to draw a basis for interpretation and generalisations (Polit and Hunger, 1993). A survey is a study that is done by collecting information that will determine or demonstrate relationships between variables and describe situations as they exist (Burns and Grove, 1997). It is done without any prior experiment to know things to manipulate and also without influence or interference on any variable to be studied as suggested by Bickman and Rog (1998). The quantitative and qualitative methods of data collection were utilised in the form of questionnaire and observation respectively. This indicates that, the researcher used the mixed method approach in data collection and analysis. This became necessary because the researcher sought to collect observation data that would corroborate data from the

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questionnaire to better understand the research problem. From the results of the study, the researcher will attempt to give a general view pertaining to the use of instructional resources in the selected private and public senior high schools in Kumasi and its perceived effects on academic performance. The descriptive survey design was chosen because it gives researchers the opportunity to study quantitative information in order to find characteristics about the population or phenomenon that is being studied.

Study Area

The Kumasi Metropolis is one of the 30 administrative districts in the Ashanti Region. The city of Kumasi was founded in the 1680s by the first Asante King Osei Tutu I to serve as the capital of the Asante Kingdom (KMA, 2010). Given its strategic location and political dominance, Kumasi developed into a commercial centre with all major trade routes in Ghana converging in the city (KMA, 2010). With time, the city began to expand, and it is currently rated second only to Accra (the national capital) in terms of land area, population size, social life and economic activity (KMA, 2010).
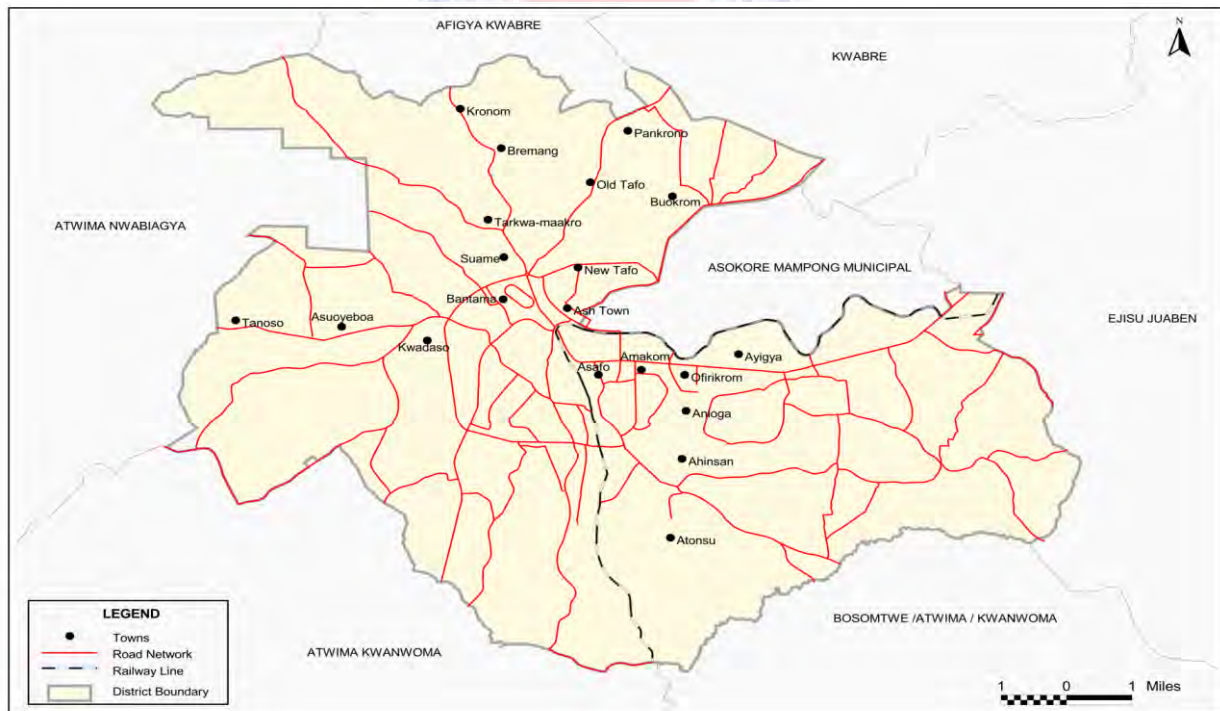
Figure 3.1:   Map of Kumasi Metropolis
Source: Kumasi Metropolitan Assembly (2010)

Kumasi Metropolis boasts of a vibrant educational system with educational facilities provided and invested into by both public and the private sector ranging from pre-school up to the university level. There are more than 80 senior high schools in the Ashanti Region where Kumasi metropolis is located. The Metropolis itself has a concentration of about 52 of these high schools which includes public and private ones. Notable among them are the Adventist Senior High School, Ghana Armed Forces Senior High School, Anglican Senior High School, Prempeh College, Kumasi High School, Opoku Ware School, Kumasi Academy, Kumasi Girls, Yaa Asantewaa Girls, St. Louis Girls, Osei Kyeretwie Senior High among others.

The Population

Population according to Burns and Grove (1997) is the entire aggregation of respondents that meet the designated set of criteria for a particular study. The target population in this study was all tutors and students in the private and public Senior High Schools in the Kumasi Metropolis in the Ashanti Region of Ghana. The target population is estimated to be around 42,000 students and 950 teachers with each school having an average population of about 2,500 students (KMA, 2010). This target population was selected because the researcher stays and works in the Kumasi Metropolis and has easy access to a number of these Senior high schools. The students were included in the study to seek their views which would corroborate what was given by their teachers.

Sample and Sampling Technique

The quality of a piece of research falls not only by the appropriateness of methodology and instrumentation but also by the suitability of the sample and sampling strategy that has been adopted (Morrison, 1993). To ensure that the selected sample is a fair representation of the target population, a total of 250 participants (teachers and students) were sampled for the study. Conscious efforts were made by the researcher to include both male and female teachers and

students from every department in each school. This was done with the help of stratified and random sampling techniques. An equal number of 125 participants each were sampled both from the public and private institutions. Out of the 52 senior high schools in the metropolis, 35 are public and 17 are private. The researcher randomly selected ten (10) senior high schools (5 from the private sector and 5 from the public ones). The ten schools were used as strata from which fifteen (15) teachers and ten (10) students were randomly selected from each school. A total of one hundred and fifty (150) teachers were sampled as well as one hundred (100) students making a grand total of two hundred and fifty (250) participants. Table 3.1 provides a breakdown of the sample distribution. The researcher used simple random sampling to also select the student sample for the study.

Table 3.1 Sample distribution

Participating schools	Participants sampled		
	Teachers	**Students**	**Total**
Private Schools			
Assemblies of God Senior High School	15	10	25
Hopfa Senior High School	15	10	25
Ghanaian German Senior High School	15	10	25
Ideal College	15	10	25
Angel Senior High School	15	10	25
Total	*75*	*50*	*125*
Public Schools			
Yaa Asantewaa Girls' Senior High	15	10	25
Adventist Senior High School	15	10	25
Osei Kyeretwie Senior High	15	10	25
Prempeh College	15	10	25
Asanteman Senior High School	15	10	25
Total	*75*	*50*	*125*
Grand Total	**150**	**100**	**250**

Source: Author's construct (2016).

Instruments for Data Collection

The instruments for the study were two sets of questionnaire and an observation guide. Hendricks (2009) describes a questionnaire as a set of carefully designed questions given in exactly the same form to a group of people in order to collect data about some topic(s) in which the researcher is interested. To measure a concept like use of instructional resources and its effects on students' performance calls for a cautious selection of appropriate data collection instruments. The researcher conscientiously opted to use questionnaire for data collection even though interview was conducted occasionally. This is because the research questions for the study calls for both qualitative and quantitative data which are appropriately collected using interview and questionnaire respectively.

Questionnaire

The researcher designed separate questionnaires for the two different categories of respondents selected for the study (Agyedu, Obeng & Donkor, 2010). The questionnaires were designed for teacher respondents and student respondents. The questionnaire for teachers consisted of 30 close ended items meant to collect data which addressed the research questions for this study. Specifically, the teachers' questionnaire sought to find how teachers dealt with the issue of instructional resources in situations where they are available and when they are not. The questionnaire for students, which consisted of close-ended items was also aimed at finding out whether students were aware that the use of teaching and learning resources impacted their academic performance. The two sets of questionnaires for teachers and students respectively are attached as appendix 'A' and 'B'.

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Observation

Observation schedule was conducted as a means to cross-check or verify some of the information provided by teachers through questionnaire administration (Cohen, Manion and Morrison, 2007). Specifically, the observation checklist was designed to help the researcher address the third objective which sought to establish whether instructional resources are available for use by teachers in public and private senior high schools. Through observation, the researcher sought to find out the various kinds of instructional materials, their whether available or not, and when available whether enough or not.

Data Collection Procedure

The researcher visited the schools and briefed the teachers and students on the purpose of the study and its educational implications after permission was sought and granted by the Heads of the schools involved. The respondents were allowed some time to raise questions about the areas they were finding difficult to understand. After the discussion, the questionnaires were distributed to them. The teachers were given the questionnaires to respond to at their own convenience which were later retrieved.

During questionnaire administration, the researcher covertly observed the teachers on the use of instructional resources. This was done with the help of an observational guide (See Appendix C) which enabled the researcher to record whether teachers were using instructional resources which were available or otherwise. On the whole, the researcher spent about five weeks for the collection of the data. All respondents responded to the questionnaires yielding a response rate of 100%.

Validity and Reliability of Instruments

Validity and reliability in research is the degree of stability exhibited when measurement is repeated under identical conditions (Burns & Grove, 1997). The researcher took the following steps in order to ensure the validity of the data. The questionnaire was based on information obtained from literature review. This was to ensure that it was from a representation of elements from the subject under study (Polit & Hunger, 1993). An initial draft of the questionnaire was tested using teachers from Toase Senior High School and Nkawie SHS both in the Ashanti Region but outside the study area. Again, the instruments were presented to the supervisor of this study to go through and make suggestions. Based on their feedback, few items were revised to improve better comprehension, content validity, wording format and question flow. This was also to enable the researcher carry out a preliminary analysis to see whether the wording and format of questions will present any difficulties when the main data is analysed.

Data Analysis Procedure

Data analysis is the process of evaluating data using analytical and logical reasoning to examine each component of the data provided (Burns & Grove 1997). Data analysis procedure helps in making meaningful inferences, predictions and conclusions from collected data. It also helps in converting data into information and again explores the relationships between variables. After collecting the data, it was first edited since according to Burns and Grove (1997) "information gathered during data collection may lack uniformity." Some information given may need reconstruction. During editing, relevant and appropriate errors were found and modified. The edited questionnaires were then organised. The researcher used simple frequencies and percentages to analyse the data. Further, observational analysis was conducted to validate the quantitative results obtained through the questionnaire administration specifically for researcher question two. The observation checklist was in the form of a Likert

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type scale. It had five dimensions namely; available (1), not available (2), and available but not enough (3). Kusi (2012) explains that the researcher may collect a massive amount of data or different kinds of data and it is important to spend enough time to organise them.

Ethical Considerations

A major ethical concern for researchers in their line of duty is that which requires them to strike a balance between the demands placed on them as professional scientists in pursuit of truth and their subjects' rights and values potentially threatened by the research (Cohen, Manion and Morrison, 2007). To make this study conform to ethical principles and practices, the rights to self-determination, anonymity, confidentiality and informed consent were observed (Kusi, 2012). The respondents were informed of their rights to voluntarily participate or decline. They were informed about the purpose of the study and were assured of not reporting any aspect of the information they provided in a way that will identify them. They were assured that there were no potential risks involved in the process.

CHAPTER FOUR

PRESENTATION AND DISCUSSION OF RESULTS

Introduction

This study was conducted in the Kumasi Metropolis to investigate the use of instructional resources and its impact on the academic performance of students in selected private and public senior high schools. This section of the study presents the results emanating from the data collection through questionnaire administration and further presents a discussion on the data collected. It deals with the presentation and analysis of data gathered from the field through administered questionnaires. The researcher used descriptive statistics such as frequencies, percentages and means for the analysis. The analyses were guided by the research objectives.

Discussion of Results

This section of the study presents the data collected from both the private and public schools that were part of the study. The first part contains the presentation and discussion of demographic characteristics of the respondents. The second deals with the factors affecting the use of instructional resources in teaching and learning whilst the third talks about challenges teachers face in the use of instructional resources in their lesson delivery. The final part presents a discussion on the impact of instructional resources on the performance of students.

Demographic Information of Respondents

The researcher collected the socio-demographic data of teachers who formed part of the respondents which is meant to provide an understanding of the respondents' profiles. This was also meant to establish the suitability of the participants for the study and provide a basis for further discussions. Demographic data such as age, gender, educational level and teaching experience collected are presented in Table 4.1.

Table 4.1 Demographic data of teachers

Variables	Public schools		Private schools	
	(f)	(%)	(f)	(%)
Gender				
Male	41	54.7%	53	70.7%
Female	34	45.3%	22	29.3%
Total	75	100	75	100%
Age				
Below 25 years	3	4.0%	7	9.3%
26 – 30 years	3	4.0%	13	17.4%
31 – 39 years	10	13.3%	31	41.3%
40 – 49 years	43	57.4%	24	32%
50 – 59 years	13	17.3%	0	0%
60 years and above	3	4.0%	0	0%
Total	75	100	75	100%
Highest Educational Qualification				
Diploma	0	0%	2	2.7%
HND	8	10.7%	10	13.3%
1st Degree	57	76%	56	74.7%
Post-Graduate	10	13.3%	7	9.3%
Total	75	100	75	100%
Teaching Experience (Number of years taught)				
Less than a year	6	8%	2	2.7%
1 – 5 years	3	4%	34	45.4%
6 – 10 years	34	45.3%	31	41.3%
11 – 15years	17	22.7%	4	5.3%
16 – 20years	15	20%	2	2.7%
Above 20 years	0	0%	2	2.7%
Total	75	100.0	75	100.0

Source: Author's field survey, 2016

A look at the data presented in Table 4.1 shows that in the private schools, 53 out of the 75 teachers sampled which represents 70.7% were males whilst the remaining 22 representing 29.3% were females. This is an indication that majority of teachers in the private senior high schools in the study area are males. It was however seen that in the public schools, the majority of teachers were males but were not as many as their private school counterparts. It indicates that the females were higher in number in the public schools as compared to the private schools.

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Again, with regards to the age information of teachers presented in Table 4.1, majority of teachers in the public schools were aged between 40 – 49 years whilst that of the private schools was 31 – 39 years. It was seen that in the private schools, 7(9.3%) teachers were below 25years and 13(17.4%) were aged between 26 and 30 years. From the table, 24 teachers from the private school representing 32% were in the age group of 40 – 49years.

The highest educational level of teachers was also collected and presented in Table 4.1. From the data presented, it is seen that in the private schools only two (2) respondents representing 2.7% held Diploma certificates whilst 10(13.3%) were holders of HND certificates. The majority of respondents 56(74.7%) had completed their bachelors' degree whilst 7(9.3%) were holders of Post-Graduate certificates. This result indicates that respondents were adequately qualified as per their educational training and as such considered suitable to partake in this study. However, most teachers in the public schools have first degree as their highest education as this received 76% of the responses. This goes to say that teachers in the public senior high schools are well qualified in terms of academics than their private school counterparts. This is highlighted by similar studies such as the National Center for Education Statistics (2007), Adipo (2015) who concluded that, on certain measures, public school teachers appear to be more qualified than private school teachers in terms of their education and years of teaching experience.

A look at the teaching experience of respondents shows that two (2.7%) teachers in the private schools had experience of less than a year whilst 34(45.4%) responded that they had within 1 – 5 years of teaching experience. Again, 31 respondents representing 41.3% had experience of 6 – 10 years with four (5.3%) possessing teaching experience of 11 – 15 years whilst two (2.7%) respondents had experience of 16 – 20 years and the remaining two (2.7%) experienced

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above 20 years. Also, the average teaching experience of teachers in the public schools was six years and above since 45.3% of respondents were recorded in this experience bracket. It can be inferred from the foregoing that majority of the teachers in the private schools are moderately experienced and whilst those in the public schools were more experienced.

Table 4.2 Students' demographic data

Variables	Public schools		Private schools	
	(f)	(%)	(f)	(%)
Gender				
Male	18	36%	9	18%
Female	32	64%	41	82%
Total	50	100.0	50	100.0
Age				
Below 16 years	11	22%	4	8%
16 – 18 years	21	42%	15	30%
19 – 21 years	10	20%	20	40%
22 years and above	8	16%	11	22%
Total	50	100.0	50	100.0
Level / Class				
SHS One	12	24%	14	28%
SHS Two	24	48%	19	38%
SHS Three	14	28%	17	34%
Total	50	100.0	50	100.0

Source: Author's field survey, 2016

Table 4.2 presents the demographic data of the students from both public and private senior high schools sampled for the study. The data shows that 82% of students in the private schools are females whilst that of the public schools are 64%. This shows that majority of students in the senior high schools are females, however, there are more females in the private schools than the public schools.

The age distribution of students shows that the modal age for students in the public schools is 16 – 18 years recording 42% whilst that of the private schools is 19 – 21 years which recorded 40%. In general, it is seen that students in the private schools are older than their counterparts in the public schools.

It is also seen from the table that majority of students sampled for the study are in Senior High School Two since 48% of the public students and 38% of private school students were in this class.

Research Question One:

Factors Affecting the Use of Instructional Resources in Teaching and Learning

The usefulness of teaching and learning resources and its role in augmenting the teaching and learning process cannot be overemphasized. Traditionally, teaching and learning resources when used appropriately has benefits for both teachers and students. However, several factors account for the successful integration of teaching and learning resources in the teaching and learning process to effectively improve instruction and student learning. In this study, the researcher sought to investigate the factors that affected teachers' use of instructional resources in senior high schools in the study area. The results obtained are presented in Table 4.3 which are further discussed.

Table 4.3 Factors affecting the use of instructional materials by teachers

Variables	Cat	SA		A		D		SD	
		f	%	f	%	f	%	f	%
Students' cultural background affect	Pri.	7	9.3%	18	24%	30	40%	20	26.7%
teachers' use of instructional materials	Pub	6	8%	4	5.3%	43	57.3%	22	29.3%
Students' educational level influence the	Pri.	31	41.3%	26	34.7%	15	20%	3	4%
use of instructional materials	Pub	4	5.3%	12	16%	43	57.3%	16	21.3%
Physical infrastructure and availability of	Pri.	26	34.7%	38	50.7%	11	14.7%	-	-
resources in school affect the use of	Pub	33	44%	42	56%	-	-	-	-
instructional materials									
Class size has influence on the use of	Pri.	19	25.3%	30	40%	21	28%	5	6.7%
instructional materials	Pub	15	20%	29	38.7%	21	28%	10	13.3%
Teachers' qualification and experience	Pri.	32	42.7%	38	50.7%	2	2.7%	3	4%
influence the use of instructional resources	Pub	31	41.3%	32	42.7%	12	16%	-	-
The space and time allotted for subjects	Pri.	24	32%	26	34.7%	21	28%	4	5.3%
determine the use of instructional	Pub	12	16%	20	26.7%	34	45.3%	9	12%
resources by teachers									

Source: Author's field survey, 2016
Key: Cat – Category: Pri. = Private School; Pub = Public School,
SA = Strongly Agree; A = Agree; D = Disagree; SD = Strongly Disagree

a. Cultural background

Table 4.3 presents factors affecting the use of instructional materials by teachers in the private and public senior high schools. From the table, when teachers were asked whether students' cultural background affected the use of instructional materials, a combined percentage of 23.3% of private school teachers which corresponds to a frequency of 25 out of 75 agreed whilst 66.7% which corresponds to a frequency of 50 disagreed. This implies that, private school teachers were of the view that students' background did not affect how teachers used instructional materials in their teaching. This is an indication that private school teachers did not consider students' background as affecting their use of instructional resources. A similar trend is observed from the results obtained from the public school teachers. With a combined disagreement ('strongly disagree' + 'disagree') percentage 86.6%, public school teachers also rejected the assertion that students' background affect the use of instructional materials on an even higher note.

b. Students' educational background

The table further shows that, private school teachers agreed that students' educational level influence the use of instructional resources in teaching and learning with an agreement percentage of 76%. On the other hand, with a percentage of 21.3%, this was rejected by teachers in the public schools. This suggests that public school teachers and private school teachers varied in their view of educational level of students being an influential factor in the use of instructional resources by teachers. Comparing this finding with literature, all the authors whose works were cited (Bakare, 1986; Balogun, 1986; Fakomogbon, 2000) did not mention students' educational level as influencing the use of instructional materials. What this means is that, instructional resources can be used at all levels of education regardless of the educational level of students.

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c. Physical infrastructure

With regards to the third variable which states that, physical infrastructure and resources in the school affect the use of instructional materials, teachers from both the private and public schools agreed however there was a slight difference. Responses from public school teachers received agreement percentage of 100% whilst private school teachers had 85.4% indicating that public school teachers agreed more strongly with the assertion than private school teachers. This is in accordance with literature on physical infrastructure affecting use of instructional resources as Balogun, (1986) and Fakomogbon, (2000) point to the fact that the kind and extent of physical facilities and infrastructure available including community resources affect the choice of instructional materials that can be used for a lesson at a particular time.

d. Class Size

Class size as a factor influencing the use of instructional materials was accepted by 65.3% of private school teachers whilst 34.7% of respondents disagreed. In the same vein, the responses from public school teachers received an agreement percentage of 58.7% with 41.3% disagreeing. This indicates the acceptance of teachers both from the private and public schools of the fact that class size has an influence on the use of instructional materials. This is also confirmed by Bakare (1986) who states that the number of learners/students involved in a class or to be taught dictates the kind of instructional resources to be used.

e. Teacher Qualification

On the issue of teacher qualification being an influential factor in the use of instructional resources during teaching, teachers from private and public schools all responded affirmatively. An overwhelming percentage of 70(93.4%) of public school teachers agreed whilst 5(6.6%) disagreed in the private schools with (63)84% and (12)16% agreeing and disagreeing

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respectively in the public schools. This is an indication that respondents believed that teachers' qualification and experience were contributory factors towards the use of instructional resources in the school setting.

f. Space and time alloted

In the same vein, respondents' views on whether space and time allotted for subjects determine the use of instructional resources by teachers was sought and is presented in the table. The result as shown in the table reveals that with agreement percentage values of 66.7% and 42.7% for the private and public school teachers respectively, the private school teachers accepted space and time as affecting use of instructional resources whilst public school teachers disagreed otherwise.

The foregoing results indicate that apart from students' cultural background, respondents accepted in order of importance the following as being factors affecting their use of instructional materials in teaching; teacher qualification and experience, available physical infrastructure and resources, students' educational level, space and time allotted for lesson and the class size. There were however differences in the results obtained from the public and private school teachers.

Research evidence supports the current results of study as Balogun, (1986) explained that school environment such as material resources otherwise known as infrastructural facilities available to teachers and students influence the use of instructional resources by teachers. Fakomogbon (2000) also observed that the causes of failure in Nigerian secondary schools is inadequate teaching and learning resources. Bakare (1986) also outlined several factors as affecting the use of instructional materials which include: the nature of the subject matter, the

number of learners or class size, the space and time available, facilities and materials available and the interest, abilities and qualifications of the teacher.

To buttress the above, Afolabi (2008) indicates that availability of instructional materials and ability of teachers to use them are vital determinants in the use of teaching resources by teachers and consequently academic achievements of students. According to him, the ability to use instructional materials in teaching mainly depends on training of teacher in the use of such.

Research Question Two

Challenges Faced by Teachers in the use of Instructional Resources in their Teaching

Research findings assert that teaching and learning cannot be effective without adequate and relevant use of instructional materials (Fakomogbon, 2000; Ayaga, 2010). Notwithstanding the benefits of instructional resources in teaching, teachers often encounter problems or challenges in their usage. To this effect, the researcher sought to find out from teachers the challenges they encounter in the utilisation of such teaching and learning resources in their lesson delivery. The results obtained are presented in Table 4.4.

The quest by teachers to use instructional resources to improve the teaching and learning process is not without challenges. In this study, the researcher asked from respondents the challenges that they face regarding their use of instructional materials in their lesson delivery. The results are presented in Table 4.5.

Table 4.4 Challenges faced by teachers in the use of instructional resources

Variables	Cat	SA		A		D		SD	
		f	%	f	%	f	%	f	%
Unavailability of appropriate and relevant	Pri.	39	52%	18	24%	9	12%	9	12%
learning resources for use by teachers	Pub	28	50%	29	38.7%	8	10.7%	-	-
Low durability and perishable nature of	Pri.	39	52%	20	26.7%	8	10.7%	8	10.7%
available resources lead to easy damage	Pub	32	42.7%	34	45.3%	9	12%	-	-
of materials									
Preparation, acquisition and storage of	Pri.	32	42.7%	43	57.3%	-	-	-	-
teaching resources are tedious and	Pub	17	22.7%	27	36.0%	26	34.7%	5	6.7%
expensive									
Teachers lack handling skills and mastery	Pri.	4	5.3%	17	22.7%	27	36%	27	36%
in use of teaching and learning resources	Pub	5	6.7%	13	17.3%	50	66.7%	7	9.3%
Instructional resources sometimes hinder	Pri.	9	12%	12	16%	35	46.7%	19	25.3%
rather than aid student learning.	Pub	6	8%	14	18.7%	55	75%	-	-
School administrators are unwilling to	Pri.	39	52%	30	40%	2	2.7%	4	5.3%
procure good instructional resources and	Pub	27	36%	37	49.3%	11	14.7%	-	-
hence teachers are left to improvise									

Source: Author's field survey, 2016

Key: Cat – Category: Pri. = Private School; Pub = Public School,

SA = Strongly Agree; A = Agree; D = Disagree; SD = Strongly Disagree

The data presented in Table 4.4 on the challenges faced by teachers in their usage of instructional resources reveals that both public and private school teachers agree that the unavailability of appropriate and relevant learning resources was one of the major challenges for them. In response to this, 76% of private school teachers and 88.7% of public school teachers agreed. This result is consistent with research findings from Grant (1978) who noted that teaching and learning cannot be effective without adequate and relevant use of instructional materials, which are sadly unavailable in most secondary schools. To lend further credence to this, Schramn (1977) opined that there was the need to establish the availability of these materials in schools and how effectively they were to be used.

The next challenge as reported by respondents in this study was the low durability and perishable nature of the available teaching and learning resources. This was agreed by 59(78.7%) of private school teachers whilst 66(88%) of public school teachers also agreed. Low durability of resource materials was cited in literature as one of the challenges teachers face when handling teaching and learning resources according to Omwenga (2008).

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With regards to the preparation, acquisition and storage of teaching resources, respondents were unanimous in their agreement that this constituted a major challenge for teachers. To this assertion all 75 teachers from the private schools representing 100% agreed. Public school teachers also likewise agreed however with a slightly less percentage. It is seen that only 44 out of 75 teachers from the public schools representing 58.7% agreed. This suggests that, as private school teachers saw the preparation, acquisition and storage of teaching and learning resources as a big problem for them, teachers of public schools though recognised it as a problem but not a major one for them, hence the differences in percentage values.

It is seen from the table that teachers largely disagreed to the assertion that they lacked handling skills and mastery in the use of teaching and learning resources. From the data presented in the table, 72% of public school teachers with a corresponding frequency of 54 out of 75 disagreed that lack of teacher skills in effectively handling instructional resources was a challenge to them. Similarly, an even higher percentage of 76% of public school teachers disagreed. This result suggests that although teachers believed they had the requisite handling skills to effectively use instructional resources in their teaching, other challenges such as those presented in this section were constraining them in their effective usage. This finding is however inconsistent with literature as several authors indicate that teacher ineptitude in the handling of instructional media/technology negatively affects the usage of these media in teaching (Lumumba, 2008; Dahiya, 2004; Grabe & Grabe, 1998).

Also, from the data presented in Table 4.4, all teachers disagreed with the assertion that instructional resources sometimes hinder rather than aid student learning and hence did not present a challenge to them. This was disagreed to by a majority of private school 54(72%) respondents whilst a similar percentage of 55(75%) from the public schools also disagreed.

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This in effect indicates that teachers do not think that instructional resources can hinder student learning. The reason for this is probably due to the fact that, as seen from previous findings in this study, teachers do not use adequate and more sophisticated instructional resources whose handling can be sometimes challenging and hinder student learning. Findings in literature was however at variance with this result. For instance, Shanguya (1995) found in his study that instructional resources when not used appropriately has the tendency of hindering the learning of students rather than aiding it.

Further on the issue of the willingness on the part of school administrators to procure good instructional resources, a majority of 69(92%) private school teachers agreed. In the public schools, 64(85.3%) of respondents agreed. This is a testament to the fact that educational administrators especially those in private schools whose main objective is to make profit, do not procure good quality instructional resources for the benefit of both teacher and student in the teaching and learning process. This, further, is in consonance with research findings from Dahiya (2004) who mentioned that the expensive nature of resource materials tends to put educational leaders off, and are therefore unwilling to procure these materials because of their high cost in nature.

From the foregoing discussion, it is seen that in the opinion of respondents, the challenges faced by teachers in the use of instructional resources are the preparation, acquisition and storage of these resources, the unwillingness of school administrators to procure good resource materials, unavailability of appropriate and relevant learning resources and the low durability and perishable nature of available teaching and learning resources.

Research Question Three

Availability of instructional Resources for use by Teachers

The availability of instructional resources is vital in the support and advancement of education. Reviewed studies have shown that learning without instructional resources is impossible. According to Bishop (1985) teaching and learning resources must first of all be provided for teachers in their initial teacher training to enable them be familiar with a vast array of teaching resources. He goes ahead to say that when a teacher has a tool at hand, his confidence, effectiveness and productivity, all increase.

Table 4.5 Availability of instructional resources

Variables	Cat.	SA		A		D		SD	
		f	%	f	%	f	%	f	%
Relevant textbooks are available for use as	Pri.	39	52%	29	38.7%	7	9.3%	-	-
teaching and learning resources	Pub	28	50%	29	38.7%	8	10.7%	-	-
Pictures, models, drawings and specimens	Pri.	15	20%	14	18.6%	35	46.7%	11	14.7%
are available for use by teachers	Pub	32	42.7%	34	45.3%	9	12%	-	-
Good laboratories, school farms and	Pri.	6	8%	13	17.3%	42	56%	14	18.7%
workshops for practical lessons are	Pub	17	22.7%	27	36.0%	26	34.7%	5	6.7%
available									
Industrial establishments, markets, game	Pri.	16	21.3%	22	29.3%	23	30.7%	14	18.7%
reserves and government facilities are	Pub	5	6.7%	13	17.3%	50	66.7%	7	9.3%
accessible for use as teaching resources									
Charts and diagrams are available for use by	Pri.	28	37.3%	24	32%	19	25.3%	4	5.3%
teachers	Pub	6	8%	14	18.7%	55	75%	-	-
Computer technology like LCD projectors,	Pri.	14	18.7%	22	29.3%	22	29.3%	17	22.7%
PowerPoint, computer and audiovisuals are	Pub	27	36%	37	49.3%	11	14.7%	-	-
available in the school									

Source: Author's field survey, 2016
Key: Cat – Category: Pri. = Private School; Pub = Public School,
SA = Strongly Agree; A = Agree; D = Disagree; SD = Strongly Disagree

Table 4.5 presents teachers' views on the availability of instructional resources for use in their teaching and learning. A critical look at the data presented in the table reveals that the instructional resources which are readily available and accessible by teachers in their teaching are textbooks, charts and diagrams. In the private schools, availability of relevant textbooks scored a percentage agreement of 90.7% and charts and diagrams received a percentage of 69.3% which indicates that respondents accepted that these were available for use in teaching

in the private schools. In the public schools, teachers also accepted that textbooks were available but not charts and diagrams. These statements received percentages of 88.7% and 26.7% respectively. Ogechi (1992) and Orina (2001) gives research evidence to support this finding stating that print media was commonly used in teaching because they were readily available and easily accessible by teachers.

From the table, a combined percentage of 61.4% of private school teachers disagreed that pictures, models, drawings and specimens were available for use as instructional resources. With this, it is evident that teachers from the private schools do not have pictures, models, drawings and specimens available for their use. However, teachers from the public schools reported that they have these resources available. This received agreement percentage of 88% which indicates acceptance of the statement. This shows that in the private schools, pictures, models, drawings and specimens were unavailable whilst they were available in the public schools. This finding is supported by Misoy (1987) who found in her study that instructional technology for teaching and learning was either inadequate or unavailable and further stated that models and specimens were basically not available in most schools especially the privately funded ones.

Similarly, when asked whether good laboratories, school farms and workshops for practical lessons are available for use as teaching and learning resources, only a combined percentage of 25.3% teachers in the private schools agreed whilst 74.7% disagreed. With agreement percentage of 58.7%, public schools however accepted that they had these facilities serving as teaching and learning resources. This suggests that the private schools were lacking facilities which were otherwise available in the public schools. This is in line with research findings by William (2004). According to William practical school farms for the teaching of agriculture

were non-existent in most of the secondary schools who offered agriculture as a programme of study to students. These students had to rely on the lecture method of teaching to learn the subject which otherwise ought to be practical in nature. Idowu (2010) also came out with similar outcome that practical laboratories or school farms were lacking in majority of the secondary schools surveyed in his study.

Again, the researcher sought to know from teachers whether industrial establishments, markets, game reserves and government facilities were available for use as teaching resources. To this variable, the results show that teachers, both private and public were a bit undecided as a combined percentage of 50.6% agreed whilst 49.4% disagreed. This may probably be due to the fact that the study was conducted in the Kumasi metropolis which has a number of these community resources. However, some of these communities may be available but not for public use. In this case, it could be said that some of the community resources were available whilst others were not.

The last item on the table which sought to know whether computer technology like LCD, projectors, PowerPoint and audio visuals are available in the schools, 52% of respondents disagreed in the private schools. This indicates that, the availability of computer technology in the private schools were limited. However, in the public schools, 85.3% agreed that computer technology was available in these schools. This shows that there is a gap between the private and public schools in terms of computer technology availability. Several research conducted by other authors report similar findings. Nnoli, (2005) observes that the huge costs of computer technology and the lack of goodwill on the part of educational administrators especially in private schools account for the unavailability and consequence non usage of computer technology as instructional resource. Caves *et al.,* (2009) also report similar findings in their

study stating that Malawian Science teachers had negative attitudes towards the use of ICTs as instructional materials mainly due to their unavailability and lack of mastery in handling these technological tools.

Analysis of Observational Inquiry

To corroborate the results obtained from the questionnaire administration, observation was also carried out by the researcher. The researcher conducted observation sessions to observe the teachers during classroom lessons to see whether they used teaching and learning resources. Also, venues which were supposed to contain the teaching and learning resources such as classrooms, science resource centres, computer laboratories, kitchens and workshops, school farms and store rooms were observed appropriately for availability of relevant teaching and learning resources as and when they existed in the various schools. Venues of all the ten schools (five private and five public schools) were observed and the results are presented below in Table 4.6.
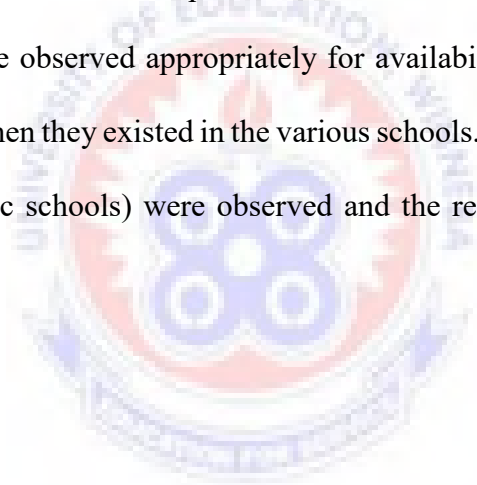
Table 4.6 Observation on availability of instructional resources in schools

No.	Use of Instructional Materials	Cat	A	NA	ANE
1.	Audio visual materials (video)	*Pub. Sch.*	-	2	3
		Pri. Sch.	-	4	1
2.	Computer & LCD projectors	*Pub. Sch.*	5	-	-
		Pri. Sch.	4	-	1
3.	Audio media (radio and PA systems)	*Pub. Sch.*	3	2	-
		Pri. Sch.	2	2	1
4.	Printed media (charts, diagrams & posters)	*Pub. Sch.*	5	-	-
		Pri. Sch.	5	-	-
5.	Models and mock-ups	*Pub. Sch.*	3	-	2
		Pri. Sch.	1	4	-
6.	Real objects	*Pub. Sch.*	3	-	2
		Pri. Sch.	-	-	5
7.	School farms, workshops, laboratories	*Pub. Sch.*	2	-	3
		Pri. Sch.	-	3	2

Key: A = Available, NA = Not Available, ANE = Available but not enough

From the observation data presented in the table, it is seen that audiovisual materials are available but not adequate in the schools observed. From the data, it is seen that in two public schools, audio visual materials were not available but in three schools, were available but not enough. However, in the private schools, four schools did not have the audio visual materials whilst the only school that was having, they were not enough.

On availability of computer and LCD projectors, all five public schools observed had available computers and projectors whilst four out of the five private schools had. Only one private school was observed to have computer projectors which were not adequate.

Audio media and Public Address Systems were observed to be available in three public schools and two private schools. Printed media like charts, textbooks, diagrams and posters were found to be available in all the schools both private and public. This is probably due to the fact that of all the instructional resources, printed media are the cheapest among them.

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Models and mock-ups were available in three public schools and only one private school. In the public schools, it was found to be available but not enough whilst in four of the private schools, it was not available at all.

Real objects were available in three public schools and not enough in the remaining two. However, in the private schools, all five schools were having real objects but not enough. School farms, workshops and laboratories were also observed and found to be available in two public schools and available but not enough in the remaining three public schools. In the private schools, three schools did not have these resources and whilst two were having but not enough.

Impact of Instructional Resources on the Performance of Senior High School Students

Research abounds with evidence and reports that instructional resources have an influence on the academic performance of students enrolled in any level of education. According to Nasibi and Kiio (2005), instructional resources are important in education because they motivate learners by linking instruction with reality. They further maintained that instructional materials encourage learners to utilise more than one sense hence increasing their attention and retention capacity. In fulfilment of the fourth research objective of this study, the researcher sought from respondents the impact or effects that teaching and learning resources have on their students' performance when used appropriately. The results obtained are presented in Table 4.6.

Table 4.7 Impact of instructional resources on the academic performance of students

Variables	Cat	SA		A		D		SD	
		f	%	f	%	f	%	f	%
Instructional resources influence learning	Pri.	29	38.7%	30	40%	8	10.7%	8	10.7%
and improve competence of teacher	Pub	29	38.7%	30	40%	16	21.3%	-	-
Instructional resources can simplify and	Pri.	37	49.3%	25	33.3%	11	14.7%	2	2.7%
clarify what is complex and difficult to express in words.	Pub	53	70.7%	22	29.3%	-	-	-	-
Instructional resources arouse interest and	Pri.	32	42.7%	34	45.3%	9	12%	-	-
stimulate student discussion	Pub	68	90.7%	2	2.7%	5	6.7%	-	-
Instructional resources promote retention and	Pri.	40	53.3%	35	46.7%	-	-	-	-
save time	Pub	75	100%	-	-	-	-	-	-
Students record significant academic	Pri.	38	50.7%	25	33.3%	8	10.7%	4	5.3%
improvement when instructional resources are well utilized	Pub	30	40%	19	25.3%	23	30.7%	3	4%
Instructional resources increase students'	Pri.	26	34.7%	31	41.3%	13	17.3%	5	6.7%
motivation to learn	Pub	32	42.7%	28	37.3%	15	20%	-	-
Sometimes instructional resources impede	Pri.	10	13.3%	15	20%	26	34.7%	24	32%
rather than aid student learning when not used in the appropriate context	Pub	7	9.3%	7	9.3%	42	56%	19	25.3%
Instructional resources raise students'	Pri.	33	44%	24	32%	18	24%	-	-
curiosity and hence capture their attention	Pub	27	36%	22	29.3%	20	26.7%	6	8%

Source: Author's field survey, 2016

Table 4.7 presents the perceived impact of instructional resources on the academic performance ⏃ =1.93), private school teachers agree that instructional resources influence learning and improve teacher competence. This was accepted by 62 out of 75 respondents representing 82.6% whilst in the public schools 100% of the teachers agreed that instructional resources improve their competence.

Again, both public and private school teachers agreed that instructional resources simplify and clarify what is complex and difficult to express in words. This variable was agreed to by 82.6% of teachers from the private schools and 100% from the public schools. A clear indication that the public school teachers strongly accepted this fact than the private school teachers. This goes to suggest that, teachers are of the view that not only do instructional resources enhance the competence of the teacher, but also clarify what is complex and difficult to express in words to students. This assertion is strengthened by research findings which state that, when a teacher provides rich experiences by using varied instruction materials, it will promote effective

learning and carry on the kind of education that fosters 'permanent learning' (Dale (1969). Ng'ang'a (2008) concurs with Dale by saying that teaching/learning resources enhance effective learning. Simiyu (2007), on the other hand, posits that students' attention is sustained through the use of instructional resources.

When asked whether instructional resources arouse interest and stimulate student discussion, an overwhelming majority of teachers both in the private and public schools. An agreement percentage value of 88% was scored for this variable by the private school teachers whilst public school teachers obtained 93.4%. A look at all the other variables shows that, with the exception of instructional resources impeding rather than aiding student learning, which scored agreement values of 33.3% and 18.6% respectively for private and public schools signifying disagreement, all the other variables were agreed to.

With agreement percentages of 100%, 84%, 76% and 76% for private schools and 100%, 65.3%, 80%, 64.4% for public schools, teachers accepted that instructional resources promote retention and save time, students record significant academic improvement when instructional resources are well utilised, instructional resources increase student motivation to learn and instructional resources raise students' curiosity and hence capture their attention. It is seen that the public school teachers recorded significantly lesser means which indicate that they strongly supported the assertions than the private schools. This is supported by Oladipo (2001), who asserted that instructional materials are important tools for enriching, visualising, simplifying, transmitting and accelerating the teaching and learning process thus enhancing students' academic performance.

Other scholars such as Mesis (2006), Mungai (1992) and Digolo (1997) agree with other researchers that instructional resources facilitate the understanding of difficult concepts and ideas. They further opined that they make learning an interesting and fulfilling experience which makes it easier for the learners to follow, understand, respond to and retain the content

of the lesson. Malau (1985) and Ololo (1998) revealed in their studies that, school resources including textbooks are significant determinants of academic performance.

As a means of corroborating the effects of instructional materials on the academic performance of students, the researcher presented questionnaires to students sampled for the study eliciting their responses on the same issue. The students' responses obtained are presented in Table 4.8.

Table 4.8 Students' responses on teachers' use of instructional resources

Variables	Private school		Public schools	
	(*f*)	(%)	(*f*)	(%)
How often teachers use teaching and learning resources when teaching				
Very often	4	8%	18	36%
Often	8	16%	7	14%
Rarely	24	48%	23	46%
Not at all	14	28%	2	4%
Total	50	100%	50	100%
How often field trips are organised for students				
Very often	-	-	19	38%
Often	8	16%	8	16%
Rarely	20	40%	23	46%
Not at all	22	44%	0	0%
Total	50	100%	50	100%
Kinds of TLMs teachers use				
LCD Projectors	4	8%	18	36%
Audio-visuals (video/audio players)	6	12%	6	12%
Real objects / models	20	40%	19	38%
Charts and diagrams	20	40%	7	14%
Total	50	100%	50	100%
Feel motivated to learn when TLMs are used in teaching				
Yes	40	80%	43	86%
No	10	20%	7	14%
Total	50	100%	50	100%
Understand lessons better when TLMs are used				
Yes	46	92%	50	100%
No	4	8%	0	0%
Total	50	100%	50	100%
Academic score increases when teaching and learning materials are used				
Yes	36	72%	45	90%

No	14	28%	5	10%
Total	50	100%	50	100%
Teachers should use TLMs more often				
Yes	48	96%	48	96%
No	2	4%	2	4%
Total	50	100%	50	100%

Source: Author's field survey, 2016

The data presented in the table shows that in the private schools, teachers did not use teaching and learning resources in their teaching as often as required. This is because, 24 respondents representing 48% indicated that their teachers rarely used instructional resources when teaching whereas 14 respondents representing 28% responded that their teachers rarely used instructional materials. However, only 8% and 16% of respondents respectively said that their teachers very often and often used teaching and learning resources when teaching them. This goes to confirm earlier findings from teachers that they were constrained in the use of teaching resources because of unavailability. In the public schools however, students reported that their teachers used the resources more often.

Further, students were asked whether field trips as a teaching/learning resource was organised for them by their teachers. To this statement, only 8 out of a total of 50 students in the private schools representing 16% affirmed that teachers organised field trips often for them. A majority of the respondents (40%) and (44%) however opined that field trips were rarely organised and not at all organised for them by tutors. In the public schools, 54% of students intimated that field trips were organised very often and often whilst 46% said these were organised rarely. On the whole, it was seen that public school teachers used field trips as teaching resources more that private school teachers.

As a follow up, students were then asked the kinds of TLMs teachers use in teaching them. To this statement, 40% each of respondents said teachers used charts and diagrams and real objects or models often in the teaching. This is probably because of the availability and inexpensive

nature of these teaching and learning materials. Also, 8% of respondents indicated that their teachers used LCD projectors as TLMs whilst the remaining 12% indicated that teachers utilised audiovisuals in teaching them. The use of audiovisual materials can be attributable to the component of Oral English in the study of English Language which requires the use of audio players for students to distinctly identify and differentiate between sounds in spoken language.

On the issue of whether TLMs enhanced their performance, 80% of students indicated that they are motivated to learn more when Teaching and Learning materials are used in teaching whereas 92% indicated that lessons are understood better when teachers utilise TLMs effectively in their teaching.

Also, a majority of 72% of students from the private schools and 90% from the public schools indicated that their academic scores increase when teachers use teaching and learning materials. This is testament that, students' who feel the effect of teaching and learning materials admit that instructional resources positively affect their academic performance when utilised effectively by teachers.

To further support students' claim of increased academic performance through effective utilisation of TLMs, 96% of students responded in the affirmative that teachers should use TLMs more often both in the private and public schools. Judging from this massive endorsement of teaching and learning resources from students, it presupposes that students really derived benefits and report increased academic performance through the usage of such.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

Introduction

The study sought to find out the use of instructional resources in teaching and learning and its perceived impacts on students' academic performance in selected public and private senior high schools in the Kumasi Metropolis in Ghana.

This section of the study presents a summary of the key findings from the results of the study, concludes on the findings and provides recommendations and suggestions for future researchers.

Summary of Findings

From the analysis of the data collected through questionnaire administration, several findings were arrived at. These findings are presented in a summarized manner in accordance with the research objectives.

Factors affecting the use of Instructional Resources

Research question one sought to find out the factors affecting teachers' use of instructional resources for teaching and learning in private and public senior high schools. From the data analysis with respect to research question one, it is seen that both private school teachers and public school teachers largely agree that physical infrastructure, class size and teacher qualification are factors that affect the use of instructional resources in teaching and learning. However, several other factors such as educational level, space and time allotted for subjects which were agreed to by teachers of private schools were rejected by the public school teachers. The private school teachers were of the view that students' educational level and the space of time allotted for subjects determine the use of instructional resources by teachers. These factors

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as already noted, was rejected by teachers in the public schools. Several other factors were also given by private school teachers such as the physical infrastructure and availability of resources in school, students' educational level, space and time allotted for lesson and class size.

Challenges Teachers Encounter in the use of Instructional Resources

It was revealed in the study that, teachers both in the public and private senior high schools encounter several challenges in the use of instructional resources. The results showed that teachers in the private schools do not have many instructional resources at their disposal compared to their counterparts in the public schools. It was seen that the private school teachers reported that the only instructional resources that were readily available to them are textbooks and charts/diagrams. On the other hand, in addition to charts and textbooks, teachers in the public schools reported to have pictures, models, specimen, laboratories, workshops and school farms, and computer technology like LCD projectors and computers to use as instructional resources. Unavailability, low durability, tedious and expensive nature of preparing, acquiring and storage of instructional materials were cited as challenges of instructional resources by the private school teachers. In addition, teachers from the private schools intimated that school administrators were unwilling to procure good instructional resources leading to unavailability of resources.

Availability of Instructional Resources in Teaching and Learning

The study revealed that the private schools lacked several teaching and learning resources than their public school counterparts. It is seen that the resources that were readily available in the private schools were textbooks, charts and diagrams. However, in the public schools, pictures, models, mock-ups, laboratories and workshops were available. From the observational inquiry

conducted however, some of these were available but not enough both in the public and the private schools.

Effect of Instructional Resources on Students' Academic Performance

On the effect of instructional resources on students' academic performance, both public and private school teachers asserted that instructional resources promote retention and saves time, they simplify and clarify what is complex and difficult and enable students to record significant academic improvement. It was also revealed that instructional materials increase students' motivation to learn. This was further confirmed by students who attested that their academic performance was improved through the effective utilisation of TLMs by teachers.

Conclusion

Based on the findings of the study, the following can be concluded:

The use of instructional resources to effectively improve the teaching and learning process is affected mainly by teacher qualification (competence and mastery) over the subject area, physical infrastructure and class size. Therefore, educational leaders and planners should include in teacher training an aspect of competence in handling instructional resources.

Availability of appropriate resources is the main challenge faced by teachers in the utilisation of TLMs coupled with the unwillingness of school administrators to procure quality and relevant resources.

Instructional resources are perceived to have positive impacts on the academic performance of students when utilised appropriately and in the right context. Therefore, teachers should endeavour to utilise such resources effectively when they are available and in the case of unavailability, improvise and design ones themselves.

Recommendations

The following recommendations are made to the relevant stakeholders in education in order to mitigate the problems in the usage of teaching and learning resources:

i.   The Ministry of Education and the Ghana Education service should endeavour to place more emphasis on the training of teachers in the use of instructional media since this ultimately affects their use of such in their teaching.

ii.   Government, educational authorities and school administrators should try to procure relevant instructional materials to ease the work of the teacher and also improve student academic performance.

iii.   Teachers should do their best to improvise where possible in the usage of instructional materials in order to benefit their students and improve their competence as well.

iv.   The heads of private institutions should employ more qualified teachers who have requisite experience in the field to handle the teaching of their classes since more qualified teachers are expected to use instructional materials more in their lesson delivery.

Suggestions for Further Studies

The researcher wishes to suggest that future researchers could conduct a similar study with emphasis on specific subjects such as mathematics and the science in public schools. Further studies could also be carried out to compare which instructional materials are more effective in improving student academic performance. Also, future researchers could conduct studies investigating the attitudes of teachers towards instructional materials and its effect on their usage of TLMs.

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APPENDIX A

QUESTIONNAIRE FOR TEACHERS

PREAMBLE

The researcher is a final year student offering M.A. Educational Leadership in the University of Education, Winneba – Kumasi Campus. Currently, the researcher is conducting a study on the topic "The use of instructional resources in selected private and public senior high schools in Kumasi Metropolis". Instructional resources refer to any material used by teachers to enhance their classroom teaching. This questionnaire is designed to solicit your views on the topic which will help the researcher achieve the objectives of this study. Any information provided is solely for academic purposes and will be treated with absolute confidentiality. Please tick [√] accordingly in the spaces provided. Thank you for your co-operation.

PART I: DEMOGRAPHIC DATA

1. Sex:

   Male [ ]   Female [ ]

2. Age (in years)

   Below 25   [   ]
   26 – 30   [   ]
   31 – 39   [   ]
   40 – 49   [   ]
   50 – 59   [   ]
   60 and above   [   ]

3. Highest educational qualification:

   Diploma   [   ]
   HND   [   ]
   1st Degree   [   ]
   Post-Graduate   [   ]

4. Teaching experience

   Less than a year [   ]
   1 – 5 years   [   ]

6 – 10 years   [   ]

11 – 15 years   [   ]

16 – 20 years   [   ]

Above 20 years   [   ]

PART II: FACTORS AFFECTING THE USE OF INSTRUCTIONAL RESOURCES FOR TEACHING AND LEARNING

Please indicate the extent to which you agree or disagree to the following factors as influencing the use of instructional resources in teaching and learning.

Key: SA = Strongly Agree, A = Agree, D = Disagree, SD = Strongly Disagree.

S/N	Statements	Responses			
		SA	A	D	SD
5	Students' cultural background influence the use of instructional materials by teachers				
6	Students' educational level influence the use of instructional materials by teachers				
7	Physical facilities and resources in school affect the use of instructional materials				
8	Class size has influence on the use of instructional materials				
9	Teachers qualification and experience (mastery of the subject matter) influence the use of instructional resources				
10	The space and time allocated for subjects determine the use of instructional resources by teachers				

PART III: AVAILABILITY OF INSTRUCTIONAL RESOURCES FOR TEACHING AND LEARNING

Please indicate the extent to which you agree or disagree to the following statements.

Key: SA = Strongly Agree, A = Agree, D = Disagree, SD = Strongly Disagree.

S/N	Statements	Responses			
		SA	A	D	SD
11	Good and relevant textbooks are available for use to influence students' academic performance				
12	Pictures, models, drawings and specimens are available for use by teachers				

13	We have good laboratories, school farms and workshops for practical lessons				
14	Community resource places like industrial establishments, markets, game reserves and government facilities are available and accessible for use by teachers.				
15	Charts and diagrams are available for use by teachers to improve student learning.				
16	Computer technology like LCD projectors, PowerPoint, computer, audio-visual learning materials are available for use in our schools				

PART IV: CHALLENGES FACED BY TEACHERS IN THE USE OF INSTRUCTIONAL RESOURCES

Please indicate the extent to which you agree or disagree to the following challenges faced by teachers in the use of instructional resources.

Key: SA = Strongly Agree, A = Agree, D = Disagree, SD = Strongly Disagree.

S/N	Statements	Responses			
		SA	A	D	SD
17	Availability of appropriate and relevant learning resources for use by teachers				
18	Low durability and perishable nature of available resources lead to easy damage of materials				
19	Preparation, acquisition and storage of teaching resources are tedious and expensive				
20	Teachers lack handling skills and mastery in use of teaching and learning resources especially computer technology				
21	Instructional resources sometimes hinder rather than aid student learning.				
22	School administrators are unwilling to procure good instructional resources and hence teachers are left to improvise				

PART V: IMPACT OF INSTRUCTIONAL RESOURCES ON STUDENTS' ACADEMIC PERFORMANCE

Please indicate the extent to which you agree or disagree to the following as impacts of instructional resources on students' academic performance.

Key: SA = Strongly Agree, A = Agree, D = Disagree, SD = Strongly Disagree.

S/N	Statements	Responses			
		SA	A	D	SD
23	Instructional resources influence learning and improve competence of teacher				
24	Instructional resources can simplify and clarify what is complex and difficult to express in words				
25	Instructional resources arouse interest and stimulate student discussion.				
26	Instructional resources promote retention and save time				
27	Students record significant academic improvement when instructional resources are well utilized				
28	Instructional resources increase students' motivation to learn				
29	Sometimes instructional resources impede rather than aid student learning when not used in the appropriate context				
30	Instructional resources raise students' curiosity and hence capture their attention				

APPENDIX B

QUESTIONNAIRE FOR STUDENTS

The researcher is a final year student offering M.A. Educational Leadership in the University of Education, Winneba – Kumasi Campus. Currently, the researcher is conducting a study on the topic "The use of instructional resources in selected private and public senior high schools in Kumasi Metropolis". Instructional resources refers to any material used by teachers to enhance their classroom teaching. This questionnaire is designed to solicit your views on the topic which will help the researcher achieve the objectives of this study. Any information provided is solely for academic purposes and will be treated with absolute confidentiality. Please tick [√] accordingly in the spaces provided. Thank you for your co-operation.

Demography

1. Sex:
    Male [   ]   Female [   ]

2. Age (in years)
    Below 16yrs   [   ]
    16 – 18yrs   [   ]
    19 - 21yrs   [   ]
    22yrs and above   [   ]

3. Class/Level:
    SHS One   [   ]
    SHS Two   [   ]
    SHS Three   [   ]

Teachers' use of Instructional Resources in teaching

4. How often do your teachers use teaching and learning materials when teaching you?
    Very often   [   ]
    Often   [   ]
    Rarely   [   ]
    Not at all   [   ]

5. What kind of TLMs do your teachers usually use in teaching you?
    LCD Projectors   [   ]
    Audiovisuals (Video / Audio players)   [   ]
    Real objects/models   [   ]
    Charts and diagrams   [   ]
    Computer software   [   ]

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6. How often do you go on field trips/excursions?
   Very often   [ ]
   Often   [ ]
   Rarely   [ ]
   Not at all   [ ]

7. Do you feel motivated to learn when teachers use teaching and learning resources to teach you?
   Yes   [ ]
   No   [ ]

8. Do you understand lessons better when TLMs are used?
   Yes   [ ]
   No   [ ]

9. Does your academic score increase when teaching and learning materials are used?
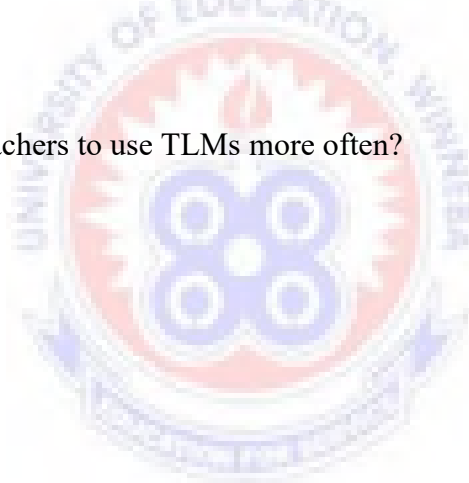   Yes   [ ]
   No   [ ]

10. Would you like your teachers to use TLMs more often?
    Yes   [ ]
    No   [ ]

APPENDIX C

OBSERVATION GUIDE FOR AVAILABILITY OF INSTRUCTIONAL

RESOURCES

Availability of Instructional Materials

No.	Instructional Materials	1 Available	2 Not available	3 Available but not enough
1.	Audio visual materials (video)			
2.	Computer & LCD projectors			
3.	Audio media (radio and PA systems)			
4.	Printed media (charts, diagrams & posters)			
5.	Models and mock-ups			
6.	Real objects			
7.	School farms, workshops, laboratories			