


UNIVERSITY OF EDUCATION, WINNEBA

THE NATURE, ACCESS AND USE OF INSTRUCTIONAL MATERIALS IN  
KINDERGARTEN SCHOOLS: A CASE STUDY IN ATWIMA NWABIAGYA  
DISTRICT.

VICTOR OWUSU

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

2016

## DECLARATION

### STUDENT'S DECLARATION

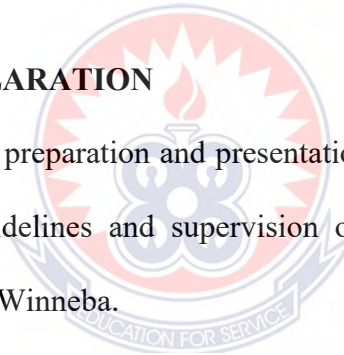
I, VICTOR OWUSU, declare that this dissertation, with the exception of quotations and references contained in published works which have all been identified and acknowledged, is entirely my own original work, and it has not been submitted, either in part or whole for another degree elsewhere.

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SUPERVISOR'S NAME: PROF. FREDERICK KWAKU SARFO

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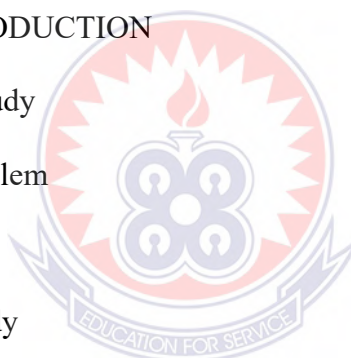
## **DEDICATION**

To my wife Mrs. Rosemond Owusu and son Rangel Nana Yaw Owusu.



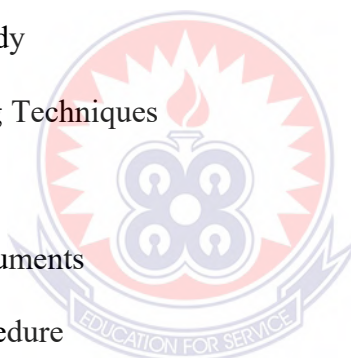
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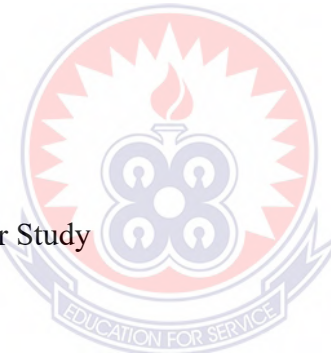


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## ABSTRACT

The study investigated the nature, access and use of instructional materials in kindergartens in the Atwima Nwabiagya District in the Ashanti Region. Specifically, the study sought to identify the nature of instructional materials that are available and accessible in kindergartens in the district, determine the extent of use of instructional materials by the kindergarten teachers in the district, find out the challenges in the availability and accessibility of instructional materials in kindergartens schools in the district, find out the challenges in the teachers' usage of instructional materials in the district. A descriptive research design was used to collect data from a sample of 160 kindergarten teachers through a structured questionnaire. The reliability test for each segment of the questionnaires yielded Cronbach's alpha scores of 0.79, 0.73, 0.65 and 0.85 respectively. The data were analyzed using the SPSS software. According to the findings, majority of instructional materials for teaching at the kindergarten level were unavailable and a few which were available too were insufficient, manufactured and poorly conditioned. Results indicated that, majority of the kindergarten teachers never used instructional materials in teaching and learning and this was due to their unavailability. The findings showed that, majority of the kindergarten teachers had challenges with availability and accessibility of instructional materials. Moreover, results revealed that majority of the kindergarten teachers were not confronted with competency challenges in the use of instructional materials in teaching. Based on the findings, it is recommended that school authorities should provide and make instructional materials accessible to teachers. Again, kindergarten teachers should improvise some of the instructional materials locally and the Ministry of Education should supply the required instructional materials to the Kindergarten schools in the district on time.

## CHAPTER ONE

### INTRODUCTION

#### 1.1 Background to the Study

Education is the process of developing the capacities and potentials of the individual so as to prepare that individual to be successful in a specific society or culture. From this perspective, education performs an individual developmental function. Education begins at birth and continues throughout life. It is constant and ongoing. Schooling generally begins somewhere between the ages of four and six when children are gathered together for the purpose of specific guidance related skills and competencies that society deems important. In the past, once the formal primary and secondary schooling was completed the process was finished. However, in today's information age, adults are quite often learning in informal setting throughout their working lives and even into retirement.

Education, in its broadest sense, may be defined as a process designed to inculcate the knowledge, skills and attitudes necessary to enable individuals to cope effectively with their environment (Abdulkareem, 1990). Its primary purpose is to foster and promote the fullest individual self-realisation for all people. Achieving this goal requires understanding of commitment to the proposition that education is a primary instrument for social and economic advancement of human welfare (Verma, 1990).

Globally, education is accepted as the process by which individuals acquire knowledge, skills and attitudes which enable them to develop their faculties in full. As Agyeman, Baku and Gbadamosi (2000) noted, "it is universally accepted that one of the benefits of good education is that it enables individuals to contribute to development and improvement in the quality of life for themselves, their communities

and the nation as a whole” (p. 9). Achieving quality basic education is an ambitious goal that few developing countries can reach in the current global economic crisis. As Lewin (2009) reported, “the countries furthest from the goals of universalising educational access were mostly in Sub-Saharan Africa” (p. 154). Lewin explained that even when it appears that the majority of children are enrolled in the primary level of education, many of those children were not enrolled in the appropriate grade for their age. In addition, daily attendance was still low in many Sub-Saharan countries; entire schools could lose half their enrolments during harvest seasons, for instance. What is more, while education is becoming equitably distributed at the elementary school level, acceptable staffing, learning materials and facilities still have to be implemented, and sharp disparities persisted in access to secondary and tertiary education. In all, more still needs to be done in Sub-Saharan Africa for quality education to be achieved and to have an impact on society.

It has been argued that a key feature of any education and training system is that adequate learning material is essential to the effective running of the system (Baxen & Green, 1998). According to the United State Agency for International Development (USAID’s) report on Education for All, “Education Strategy: Improving Lives through Learning”, quality education is improved when the following are true:

- The teacher understands the subject matter, knows how to teach it effectively, and is motivated to come to school every day and work to help children learn;
- The curriculum includes specific knowledge and skills relevant to students’ current environment as well as the more general knowledge and skills that students will need to deal with new challenges created by economic and social change; and

- All learners have access to appropriate workbooks and other learning materials that complement and reinforce teachers' efforts (USAID, 2005, p. 8).

The beginnings of early childhood education services in Ghana can be traced to the last century with the establishment of a kindergarten-type institution in 1843 by the Basel Missionaries for children of pre-school age. This modest effort by the Basel Mission collapsed when they left the educational scene. In 1951, however, the Government of the Gold Coast, realizing the need to provide Day Nursery services in the country for majority of pre-school children whose mothers predominantly engaged in market trading activities in the intense heat and dust, made an official policy statement in this regard (Annual Report of the Department of Social Welfare and Community Development, 1954). Following from this policy statement, the central government under the auspices of the Department of Social Welfare and Community Development in 1954, established six (6) Day Nursery in Commemoration of the ascension of Queen Elizabeth II to the British throne. By the needs which necessitated their establishment these early nurseries were opened in the vicinity of market places and usually at the urban centres such as Accra, Cape Coast, Sekondi, etc. and were supported and run by private individuals or voluntary bodies. The Department of Social Welfare exercised minimal control regarding its physical structure, staffing or curricula. The department, in her supervisory role, merely insisted that the centres should conform to desirable standards of hygiene and general organisation, have sufficient staff and reasonable premises and facilities for refreshment (Annual Report of Department of Social Welfare and Community Development 1956).

Apart from the government's attempt to establish and administer early childhood care and education in the country, the significant contribution of voluntary agencies, private individuals, village communities and churches deserve mention.

Churches and organisations such as the World Vision International of Ghana, the 31<sup>st</sup> December Women's Movement (i.e. a political wing of the ruling PNDC regime) and communities have assisted in the construction of physical structures and the provision of minimal facilities for crèche and pre-school services in the urban and rural areas of the country. It is worthy of mention that among the structures of all the bodies involved in the provision of preschool services, structures provided by the World Vision appear to be most comprehensive and most modern.

According to a document issued by the Ministry of Education's (1996) Basic Education Sector Improvement Programme (BESIP), classroom furniture will be replaced and school buildings rehabilitated with convenient toilet facilities provided. It also considered storage facilities for textbooks and other curriculum materials. According to the document, equipment and furniture would be provided and libraries established. With the establishment of the libraries, schools with no storage facilities were provided with box libraries throughout the country. Replacement of classrooms should be geared towards the provision of full walls with good looking systems on the doors and windows to make textbooks and other teaching and learning materials secured.

According to Ossei-Anto (1999), there is the need for effective management of the resources provided in the schools because lack of good and adequate learning resources will make the achievement of the desire objectives of improving the quality of education a mirage. Chapman and Carrier (1990) asserted that textbooks have not only shown to affect teacher's performance but also have a separate and independent effect on pupils' learning in most developing countries. The Ghana Education Service (GES) in an attempt to provide textbooks has established the Curriculum Research and Development Division (CRDD) which has its headquarters

in Accra. The Division is responsible for the development, production and distribution of teaching materials to enhance the work of the teacher in the classroom. Each District Education Office has been provided with depots for keeping textbooks, stationeries and other supplies of educational items to the basic schools under their jurisdiction. According to the School Management Committee Resource Handbook (2007), curriculum materials are things used in teaching and learning to facilitate the process and to ensure better understanding by pupils. They could include print materials (syllabus, textbooks, workbooks, and teacher's guide, among others), charts, real objects, drawings, or improvised materials. These resources make teaching real to pupils.

Lockheed and Verspoor (1991) were of the opinion that resources allocation to education in developing countries is inadequate to ensure any meaningful change that will bring about efficiency. Any attempt therefore, to find solution to the improvement of schooling in developing countries must be geared towards the provision of at least maximum levels of essential inputs.

In a recommendation, the Commonwealth Secretariat (1993) stated that greater satisfaction is achieved by both pupils and teachers when resources are appropriate and readily available. It therefore behoves the headteacher to ensure that proper planning and supervision are done to ensure that all the resources are fully utilised and developed in a responsible manner to affect the pupils' performance and their environment as well. The immense role played by learning resources cannot be over-emphasised in ensuring quality education and effective teaching and learning.

The Commonwealth Secretariat (1993) suggested that textbooks and instructional materials should be properly identified and stored. It must be realised that it is essential to have a system of textbook management in the school to ensure

maximum use of resources to achieve the best results. It further suggested that pupils should not be allowed to write in books, mark pages or underline words. Again, it states that the life span of a book highly depends on the user of the book because it has been found out that a well-bound book of a serious pupil lasts longer than the poorly bound one of a careless pupil who is irresponsible. In a situation where resources are scarce, clear policies are needed.

With the introduction of the Capitation Grant in 2005/2006 academic year, the government of Ghana has decided to make full payment of basic school students' school fees to alleviate parents' burden. Similarly, the School Feeding Programme, community sensitisation and other interventions have led to the increase in basic school enrolment including the Kindergarten (KG) which has led to the requests for more TLMs. Statistics, according to the World Bank (2010), show that enrolment of girls in Kindergarten across the country increased from 316,176 in 2004/05 to 551,784 in 2006/07, or a 74.5% increase. During the same period, boys' enrolment numbers increased from 320,939 to 552,995, or a 72.3% increase. Kindergarten net enrolment rates rose from 34.4% in 2003/2004 to 55.8% in 2006/2007. The recently released figures from the 2010/11 EMIS report show that the Gross Enrolment Rate (GER) for KG in Ghana is 98.4%, while the Net Enrolment Rate (NER) is only 60.1% (MoE/GES, 2012).

Due to this exponential increase in enrolment at the kindergarten level, the Government of Ghana through the Ministry of Education (MoE) and Ghana Education Service (GES) in collaboration with developing partners including Global Partnership for Education (GPE), United Nations Children Fund (UNICEF), and Chicago State University/United State Agency for International Development/ Teaching Learning and Materials Programme (CSU/USAID/TLMP) has moved in to adequately resource



all kindergartens and train its teachers for efficient and effective use of the available curriculum materials. For instance, the Chicago State University/United State Agency for International Development/ Teaching Learning and Materials Programme (CSU/USAID/TLMP) in Ghana which is a programme initiated by President G. W. Bush as a way of promoting Education in Africa under the USAID Africa Education Initiative (AEI) resourced all kindergartens with Teaching and Learning Materials (TLMs). The Textbooks and Learning Materials Programmes component of the AEI was to provide a minimum of 600,000 TLMs for Ghana by September 2008 through a partnership with Chicago State University and the Ministry of Education (MoE) of Ghana. The objectives for the programme are to:

- Provide teaching and learning materials in the classroom especially for lower primary;
- Improve quality of teaching and learning for enhanced pupil/student achievement.
- Improving all aspects of the quality of education and ensuring excellence of all so that recognised and measurable learning outcomes are achieved by all, especially in literacy, numeracy and essential life skills.

However, the selection of teaching and learning materials is an integral part of curriculum planning and delivery in preschools and schools. Children and students come into contact with a vast array of print, visual and multimedia materials in their daily lives. Their exposure to such materials is mediated by parents and other caregivers, by legislation and by social conventions. Educators also have a duty of care to ensure that the teaching and learning materials with which children and students are presented, or towards which they are directed, are appropriate to their

developmental growth and relevant to the achievement of appropriate learning outcomes (DECS, 2004).

According to CSU/USAID/TLMP (2011), the programme has printed and distributed 2,569,547 attractive full colour pupils' Workbooks and Teacher's Guide for KG 1 and 2, three million TLMs for KG 1 and KG 2 have been re-printed for distribution to schools (public and private), a minimum target of 600,000 TLMs by the end of the program in August 2009 was exceeded, all TLMs were field-tested before finalisation for printing to ensure input from teachers and children for whom they were being written. The programme has also provided in-service training to selected KG 1 and 2 teachers in the effective use of TLMs sent to their various schools. Professional development of teachers was of two types – in-service training (INSET) sessions organised by the districts or schools, and TLMP-sponsored and facilitated Training of Trainers (TOT) workshops. In 2008, two Training of Trainers (TOT) workshops were organised in the Eastern and Brong Ahafo regions.

The above successes notwithstanding, the Ministry of Education through Ghana Education Service (GES) seems to have special interest in providing quality KG education. Therefore, it embarked on a process to develop an Operational Plan to scale up quality KG education (MoE/GES, 2012). This process was undertaken in two phases. In the first phase, GES undertook a review of the kindergarten sector, with international consultant support from Cambridge Education Consultancy, completing a situational and stakeholder analysis. This work identified a number of emerging local approaches to meet key challenges facing the sector. In the second phase, through a number of workshops, stakeholder consultations and high level meetings, and building on the previous analysis, Participatory Development Associates (PDA) facilitated two key deliverables, which have culminated in GES developing a 5-year

operational plan to scale up quality kindergarten education in Ghana. The deliverables are to identify key KG programme outcomes, priorities and components, and also to develop a five-year evidence-based Operational Plan (OP) to support scaling up of national quality KG education.

## **1.2 Statement of the Problem**

The type of instructional materials available for teaching and learning in the country's kindergartens is crucial to the understanding of concepts and processes if quality education is to be achieved. According to Tamakloe, Amedahe and Atta (1996), it should be possible to categorise teaching and learning resources according to the five objective senses namely, auditory (hear), gustatory (taste), olfactory (smell), tactile (touch), and visual (sight).

Bruner's constructive theory suggests it is effective when faced with new material to follow a progression from enactive (0-1yrs) to iconic (1-6yrs) to symbolic (7yrs onwards). The purpose of education is not to impart knowledge, but to facilitate a child's thinking and problem solving skills which can then be transferred to a range of situations. Specifically education should also develop symbolic thinking in children (Bruner, 1961 cited in McLeod, 2008). Therefore, there is the need to have diagrams or illustrations to accompany verbal information as the enactive (0-1yrs) children represents past events through motor responses (actions) and iconic (1-6yrs) picture in the mind's eye (images) when learning a new subject. Based on the learning theory of Bruner, a child at the Kindergarten (4-5yrs) level needs instructional materials to accompany verbal information in order to facilitate the learning process. Therefore, the woeful inadequate or lack of instructional materials in many Kindergarten schools

in Ghana impedes the process of a child transforming past events through motor responses to pictures in the mind's eye.

Kindergartens education is one of the major basic types of education given to the child and quality of educating the child cannot be over emphasized. Agyeman, Baku and Gbadamosi (2000) noted that it is universally accepted that one of the benefits of good education is that it enables individuals to contribute to development and improvement in the quality of life for themselves, their communities and the nation as a whole. Achieving quality basic education is an ambitious goal that few developing countries can reach in the current global economic crisis. Lewin (2009) reported that majority of children are enrolled in the primary level of education, many of those children were not enrolled in the appropriate grade for their age as those children who have not reached age six are expected to be enrolled at the KG. The availability, accessibility and the nature or type of instructional materials to be used in the KG is key to the success or otherwise of the school of which the KG is an integral part. Several national and international researchers (e.g., Tamakloe et al., 1996; Atakpa and Ankomah, 1998; Bolick, Berson, Coutts and Heinecke, 2003; Ofoosu-Boateng, 2011) have confirmed the positive influence of the use of curriculum materials on children's academic performance. They observed that while some educators are fascinated by the potential of curriculum materials in enhancing teaching and learning, other teachers lagged behind in using instructional materials to teach. However, achieving these laudable goals of conscientious utilisation of instructional materials and resources in teaching and learning at the kindergarten level has been very challenging in developing countries such as Ghana.

The case of Ghana is peculiar because there have been several challenges with the development, distribution and utilisation of these materials which includes

irregular training of KG teachers on the effective use of instructional materials (MoE/GES, 2012). Upon the recommendations made by the President's committee on review of education in Ghana (2002), to make KG 1 and 2 part of the formal educational system, much needed to be done to marshal resources to realise its implementation. Despite the interventions by the CSU/USAID in designing teaching and learning materials in three subject areas (numeracy, literacy, and environmental studies) for KG levels 1 and 2 in all Ghanaian school districts on a nationwide scale, and the training of KG teachers in their use, many districts still complain of unavailability, inadequacy, poor use and state of key curriculum materials (MoE/GES, 2012).

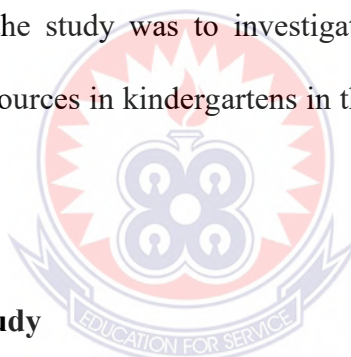
Among the official reasons adduced included, but were not limited to the rapid increase in number of schools and children from interventions like Capitation Grant, School Feeding Programme, community sensitisation and other interventions, inadequate funds to replicate the training given to KG 1 and 2 teachers in the effective use of TLMs sent to their various schools, and poor road networks (MoE/GES, 2012). Others, however, said that many curriculum materials including pictures, letters, numerals, charts, and graphs in use in some Ghanaian kindergartens are not suitable for that level (Abadzivor, 2006).

Furthermore, some teachers who were specifically trained for the KG during the National Literacy Acceleration Programme (NALAP) go on transfers and are sometimes given classes other than the KG. Therefore, headteachers in some cases have no other alternatives than to replace them with the untrained KG teachers (MoE/GES, 2012). The above challenges have impacted negatively on the quality of education in the preschool level. According to the District Education Directorate (2012), in the Atwima Nwabiagya District of the Ashanti Region, there are 269

kindergarten/nursery schools. The district has 6,873 pre-school teachers under public schools while 3,687 in the private schools. Among these teachers, 18.6% of them are untrained with a significant proportion of them being in the private schools. Opoku-Asare (2004) in a study conducted in Kumasi Metropolis found that primary school teachers only use blackboard, flash cards, real objects, charts and ruler regularly as teaching materials in all the schools due to their availability. However, little has been done on the nature, access and use of instructional materials in the context of kindergarten schools and in the Atwima Nwabiagya district.

### **1.3 Purpose of the Study**

The purpose of the study was to investigate the nature, access and use of teaching and learning resources in kindergartens in the Atwima Nwabiagya District in the Ashanti Region.



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

Specifically, the study sought to:

1. identify the nature of instructional materials that are available and accessible in kindergartens in the district;
2. determine the extent of use of instructional materials by the kindergarten teachers in the district;
3. find out the challenges in the availability and accessibility of instructional materials in kindergartens schools in the district
4. find out the challenges in the teachers' usage of instructional materials in the district.

### **1.5 Research Questions**

The following research questions guided the study:

1. What is the nature of instructional materials for kindergartens in the Atwima Nwabiagya District?
2. How often do the kindergarten teachers use instructional materials in teaching and learning?
3. What are the challenges in the availability and accessibility of instructional materials in kindergarten schools in the district?
4. What are the challenges in the teachers' usage of instructional materials in kindergarten schools in the district?

### **1.6 Significance of the Study**

It is envisaged that the findings of the study would give insight into the availability, and adequacy of curriculum materials in kindergartens in the Atwima Nwabiagya District of the Ashanti Region. It is also expected to throw light whether KG teachers actually utilise even the available teaching and learning materials during teaching and learning process in the district. Similarly, the findings of this study on the extent of use of the instructional materials by the KG teachers would enable stakeholders and policymakers to make informed decisions on the need for a regular in-service training for them. The Ministry of Education, Ghana Education Service and the District Education Directorate may utilise the study outcomes to expand the scope of the NALAP initiative to cover more teachers in the district. The results from this study would also enable developing partners including the Chicago State

University/USAID who are undertaking Former President George Bush's TLMP initiatives on the extent of success checked in its implementation.

This study also serves as baseline study on the nature, access and the extent of use of curriculum materials in the kindergarten level of education not only in the Atwima Nwabiagya District, but also the entire Ashanti Region. Also, the findings are an addition to the existing stock of literature for researchers and students investigating in similar areas of curriculum material availability, accessibility, adequacy and usage in the world.

### **1.7 Delimitations of the Study**

Many areas need intensive study concerning curriculum materials in the kindergarten level, but in a study like this it is very difficult, if not impossible, to cover all such areas. This particular study was confined to the availability, access, adequacy and the extent of use of instructional materials in kindergartens in the Atwima Nwabiagya District in the Ashanti Region of Ghana. Also, Out of the total questionnaires of 160 sent out for administration, 100 were completed and retrieved by the researcher.

### **1.8 Limitation of the Study**

Like any other study, this work also has its own limitations. The questionnaires for the study should have been prepared for all KG teachers, public basic school headteachers, and education officers from the District Education Directorate in the entire Atwima Nwabiagya District. This would have helped the researcher ascertain the true picture of instructional materials' access and usage



among Kindergarten teachers in the district so as to make generalisation more valid. However, this was not practicable because of time and financial constraints hence the use of samples.

### **1.9 Organisation of the Study**

This dissertation is organised into five chapters. Chapter One presents the background to the study, statement of the problem, purpose of the study, research questions, and significance of the study, delimitation, limitations and organization of the study. Chapter Two deals with the review of literature, including the concept of pre-school education, brief history of instructional materials/media, instructional materials in educational environment, kinds and categories of instructional materials, the types of instructional materials in kindergartens, management of learning resources in KGs acquisition, the maintenance, use and storage of curriculum materials, and the challenges facing kindergarten teachers in the use of instructional materials.

Chapter Three presents the research methodology used. It describes the research design population and the sample, research instruments, pilot-testing of the research instruments, the administration of the instrument and a plan for data analysis. Chapter Four is devoted to the findings of the study. Chapter Five constitutes the discussion of the findings with respect to the research questions. Chapter Six is the summary of findings, conclusions drawn, and recommendations made.

## 1.9 Operational Definition of Terms

**Instructional materials:** these are teaching and learning or curriculum materials and equipments which include computers, videos, and flip charts used in the teaching and learning process.

**Nature of instructional materials:** this refers to the features of instructional materials.

## 1.10 Abbreviations

BESIP: Basic Education Sector Improvement Plan

GES: Ghana Education Service

GPE: Global Partnership for Education

UNICEF: United Nation Children Fund

MoE: Ministry of Education

DECS: Department of Education and Children's Services

CRDD: Curriculum Research and Development Division

EMIS: Education Management Information System

GER: Gross Enrolment Rate

NER: Net Enrolment Rate

KG: Kindergarten

AEI: Africa Education Initiative

INSET: In-Service Education and Training

TOT: Training of Trainers



PDA: Participatory Development Associates

NALAP: National Literacy Acceleration Programme

OP: Operational Plan

CSU/USAID/TLMP: Chicago State University/United State Agency for International Development/ Teaching Learning and Materials Programme

MAMACHOLASU: MA: material; MA: manipulation; CHO: choice LA: language and SU: support

NAEYC: National Association for the Education of Young Children

NGO: Non-Governmental Organisation

SPIP: School Performance Improvement Plan

SMC: School Management Committee

UNESCO: United Nation Education and Scientific and Culture Organisation

NAECTE: National Association of Early Childhood Teacher Educators

NJAC: New Jersey Administrative Code



## CHAPTER TWO

### LITERATURE REVIEW

#### 2.0 Introduction

This chapter reviews related literature and contains information gathered from books and other periodicals, on-line sources and varied unpublished materials that provided the researcher with the necessary background knowledge to follow the study. It is organized under the following sub-themes:

- The concept of pre-school education;
- Nature of Instructional materials
- Availability of Instructional materials
- Accessibility of Instructional materials
- Use of Instructional materials
- Challenges of teachers in the use of instructional materials

#### 2.1 The Concept of Pre-School Education

The ideologies and concepts behind pre-school education have received in-depth attention in documentation such as books, journals, published and unpublished theses and on the internet. Writers including Milbank and Osborn (1987), Castle (1993), Reeves (2000), Sarpong (2006) have given various accounts on pre-school education, its approaches and facilities requisite for its successful implementation.

Milbank and Osborn (1987) observed that in a pre-school setting, as children interact with their peers and engage in a wide variety of activities, their cognitive development is stimulated. In another development, Castle (1993) underscored Pre-school Education as to give children the opportunity to learn to play together, to share toys, to use their hands, feet and eyes to gain self-confidence, to learn how to keep

clean, how to dress and how to use their bodies. The children will also sing and recite poems, which will improve their speech. According to Reeves (2000) pre-school education is the provision of education for children, usually between the age of three and five, depending on the jurisdiction before the commencement of statutory education. Sarpong (2006) explains that pre-school in Ghana are those that prepares children before the actual formal school education starts at the age of six years and also covers the initial stages of early childhood education. Also, it comprises all schools before stage one of the primary division, crèches, day care centres, nurseries, kindergarten, and cites early childhood development centres are example of pre-school. It provides a major influence on the development of the child's intellectual capabilities, interpersonal skills, social/emotional, behaviour and personality of children. Pre-school education programmes are generally offered a few years immediately preceding entry to a compulsory system at six years of age (plus or minus depending on the country). Malmberg et al. (2010) suggested that there are different opinions pertaining to the concept of pre-school education but they centre on the development of children between the ages of one and six.

### **2.1.1 Pre-School Age**

According to Chutima (2005), most child psychologists pay greater attention to the pre-school age because this is the most important period when human beings establish the foundation for their subsequent physical, mental, emotional, social and intellectual development as well as their personality. This is the time when the children undergo the greatest development and, it is a golden period for establishing the foundation for subsequent development in all areas of life. In Piaget's framework, the period between two and half and six years is a transition time during which

children gradually overcome various mental barriers to systematic, logical thinking (Piaget & Inhelder, 1969).

Reeves (2000), states that Pre-school is generally considered appropriate for children between three and five years of age. According to Shabnan (2003), Pre-school child refers to children who range from conception age to 5 years 11 months and 29 days. Also, Pichisainit as cited in Chutima (2005) defines Pre-school children as those who were between one and six years of age. Regarding the age at which a child begins pre-school education, he notes that a child should not be below age of three and above five. Pre-school is the term used to indicate the educational level for children below the age of six.

### **2.1.2 Learning Strategies for Pre-School Education**

Learning in young children is a result of the active interaction that occurs between the child and the environment, materials, ideas and people he/she meets. Experiences should match the child's development and emerging abilities, while at the same time they provide some challenges for continued growth and expansion of interests. This assertion raises concerns on the teaching and learning materials employed in pre-school education whether they are capable of helping the child to develop his emerging abilities and interests (La Paro & Pianta, 2000).

Vygotsky (1978) state that the teaching approach goes under the acronym MAMACHOLASU which is explained as follows: MA= material; MA= manipulation; CHO= choice; LA= language and SU= support. They should provide opportunities for children to manipulate a variety of objects. The choice of materials to explore and manipulate elaborate language and provision of support of early years

of education, which are crucial parts of the promotion of pre-school children's cognitive development (La Paro & Pianta, 2000).

Children are seen as active learners, and learning and teaching are seen to be reciprocal processes where often the teacher learns and the child teaches. The intended outcomes of such social-cultural learning environments are for children to grow up as competent and confident learners and communicators; healthy in mind, body and spirit, secure in their sense of belonging and in the knowledge that they make valued contributions to society. According to Shankar (1980), adult guidance through play activities can result in language, cognitive and psychomotor development of a child. When children play or make anything, their brains are involved. Play has been regarded as the heart-beat of early childhood education. It is an important vehicle for the child's social, emotional and cognitive development, as well as a reflection of development. Children learn naturally through the following: Doing, Discovering and Exploring, Asking Questions, Talking and Listening, Imitation, Trial and Error and Practice, Learning from other Children and Play (Avelino et al., 2003).

Castle (1993) explains that imitation, curiosity, self-assertion, and especially the constructive tendency, can all be seen in children's play. This, quite naturally, brings together many of the essential growing points of a child development. For this reason, it is of immense importance in education. It is the medium through which children gain much of their language.

### **2.1.3 The Ideas of Pre-School Education**

Castle (1993) underscored the main ideas of pre-school is to give children the opportunity to play together, share toys, to use their hands, feet and eyes, to gain self-confidence, to learn how to keep clean, how to dress and how to use their bodies. The children will also sing and recite poems, which will improve their speech. However, no teacher should neglect this [idea] in children, for it is the foundation of several aspects of learning, early ideas of numbers, the use of materials, the feeling of thickness, weight, length and breadth, judgment of space and shape and many other concepts.

Shabnam (2003) state that pre-school education plays a significant role as it helps children in successful completion of primary education. Shankar (1980) on his part, explains that the purpose of education at the pre-school levels is not so much a question of giving information to children to memorize as of deeply stimulating their senses arousing their curiosity, interests, stimulating, inquiry and helping them to achieve significant perceptual growth. Additionally, *The World Survey of Pre-school Education* (1976) noted that one of the main goals of Pre-school Education is to give every child the same chance of succeeding at primary school and pre-school education and thus become an important factor in democratization. Pre-school education must serve the cause of genuine democratization, which means that all must have the same opportunity to develop and to succeed.

### **2.1.4 Curriculum for Pre-School Education**

According to Johnson (1968:124), “The curriculum is the sum experiences of learners while they are under the auspices of the school”. This means curriculum refers to all the activities planned for learners in the school. The curriculum focuses



first on the child as a total person. It deals with the emotional, mental, social and physical development of the child. The curriculum includes language skills, pre-mathematical skills, creativity, music and movement, and the nature and environment. The language skills promote language development for effective communication (listening, understanding, speaking, pre-reading and pre-writing activities). The Pre-mathematical skills imbibed in the curriculum include ordering, matching, sorting, classification, measurement, pairing, adding, subtraction and others. Children seem naturally creative. This aspect is geared towards giving opportunity to children to explore things around them by the use of their sense of smell, hearing, taste and touch. Using a variety of materials such as crayons, paint, clay, markers, etc. to create original work, is one example. The music and movement also enables children to have fun, explore and identify sounds, sing, play simple instruments and develop melody.

Finally, the nature and environmental consideration of the curriculum enables children identify and appreciate objects in the environment, and talk about them, and use them purposefully. Moreover, for the pre-school children curriculum (37-60 months old) and kindergarteners (61-72 months old), goals and objectives were defined according to their developmental abilities. It can be inferred that goals and objectives have a crucial place within the curriculum while proving flexibility to teachers. According to MONE, as cited in Chutima (2005), the goal areas defined in this curriculum were: 1) Goals related to Self-Awareness; 2) Goals related to Psychomotor Skills; 3) Goals related to Self-Help Skills; 4) Goals related to Emotional Skills; 5) Goals related to Social Skills; 6) Goals related to Cognitive Skills; 7) Goals related to Language Skills; and 8) Goals related to Aesthetic and Creativity Skills.

Accordingly, curriculum philosophy of pre-school education is connected to the physical environment. For example, a curriculum philosophy, which is based on

play, might imply to us; (a) supply materials and toys, and (b) give the child free time to interact with them and play (Garvey, 1990). Another pre-school curriculum based on the Whole Child principle might imply different strategies in designing the physical environment. Bove (2000) indicates that to enhance the development of the child, the teacher should attend to, assess and intervene in five domains, namely, the adaptive, cognitive, communication, physical and social/emotional domains. Avelino et al. (2003) states that pre-school education are better prepared for primary school education in that they would acquire some pre-reading skills, counting skills and fine motor and social skills during their pre-school education. Pre-school curriculum often involves activities leading to use of visual spatial intelligence. The use of bodily-kinesthetic intelligence as a dominant intelligence among 4 to 6 years old children could be explained by developmental features of this age group in which children's efforts of discovering the world are mostly based on experiences related with movement (Malmberg et al., 2010).



### **2.1.5 Learning through Play in Kindergarten**

The kindergarten schools are required to include extended time for play. Children do best and learn best when their education blends play with academics (Levin, as cited in Miller, 2009). Play helps children acquire higher-order thinking skills, including generating testable hypotheses, imagining situations from another's perspective, and thinking of alternate solutions (Engel 2010).

Kindergarten play time and child-initiated activities are best accomplished through learning centers. Centers give children the opportunity to make their own choices, assimilate new concepts, and use a variety of skills through interactions with peers, materials, and teachers in an integrated, coordinated context.

When kindergarten-age children engage in complex socio-dramatic play, they act out specific roles, interact with one another in those roles, and plan how the play will go. Research shows that make-believe play in small groups, with opportunities to learn how to get along, contributes greatly to five- and six-year-olds' understanding of emotions and social relations (Leong & Bodrova, 2005). And, repeated success with social and emotional problem-solving helps kindergartners become even better at self-regulating and “reading” emotions.

Five- and six-year-olds are highly motivated to stay within the roles and rules of play and act out their self-regulation abilities. They practice inhibiting impulses, acting in coordination with others, and making plans (NAEYC 2009). For example, when kindergartners play “restaurant,” they must regulate their behavior to remain in the roles of customer, waiter, cashier, or store manager. Children of this age still need guidance and support from teachers to help them engage in the sustained, complex play that is most beneficial to their development. However, the level and nature of the teacher’s support will be differentiated for each child over the course the year.

When scaffolding children’s play, the teacher’s role is to share control and, without dominating the play, engage with children to scaffold increasingly complex and sustained interactions and situations. The teacher subtly facilitates when children’s play stalls, adds materials that stimulate children to extend their current play scenarios and projects, and rotates or provides different materials to spark new play ideas.

While experts agree that play is about “whole child” development – social-emotional, cognitive, and physical, the idea that, “letting students loose for extended periods of time is going to automatically yield learning gains,” is far from true (Pianta in Wilson 2009). This is particularly so for young children still learning to self-

regulate, collaborate, and become good listeners and communicators. Both extremely chaotic classrooms and overly didactic teacher-directed classrooms are counterproductive to young children's skill development in all domains. There must be a balance for learning to be optimized.

On a continuum of practice, kindergarten classrooms should be rich in child-initiated play and be playful classrooms with focused learning. A full day kindergarten class should have at least 60 minutes of play in centers in addition to an extended outdoor play period. By emphasizing this time for play based activity, kindergarten programs afford children opportunities to become deeply engaged at a complex level that supports every content area in the curriculum.

## **2.2 Nature of Instructional materials**

### **2.2.1 Brief history of instructional materials/media**

For a long time in education/learning, it has been commonly acknowledged that individuals learn through both immediate and mediated experience (Seel & Winn, as cited in Sarfo & Adentwi, 2011). Immediate experience is experience gained through direct communication with the expert and mediated experience is experience gained through media. Anthropological and archaeological studies have confirmed this and even indicated that the history of media starts from Cave drawing through language, → Paper and Ink, → Newspaper, → Telegraph, → Typewriter, → Photography, → Motion Pictures, → Radio Television, Video, Compact Disc to Computer Network in that order.

Around 1907, instructional media were originally referred to as Visual Aids or Visual Education. This term accurately described their first role in education. The emphasis was on the use of instructional materials such as charts, coloured

photographs, pictures, lantern slides and maps in schools. The purposes of visual materials during the time were to make instructions more realistic, to add powerful visual support to the instructions, to stimulate learners thinking and to reduce the complexity of instructions or ideas (Wittich & Schuller, as cited in Sarfo & Adentwi, 2011). The use of these materials was referred to as Visual Instruction or Visual Education. This was because during this time recorded sound and film were not available.

Later in 1920, film recorded sound, and radio broadcasting began to develop. Sound recording and visual instruction therefore emerged and this was referred to as audiovisual instruction. Even today most of the educators generally refer to any form of medium as audiovisual material. The growth of instructional radio occurred primarily during the decade of 1925 to 1935. By the late 1930s radio had begun its decline due to introduction of new technology.

Today, it is easier to find a television set and computers than a radio in most schools, specifically in the developed countries. School systems that operate their own radio normally do so to teach broadcasting skills and provide primarily entertainment programmes. However, at present, most of the colleges and universities in Africa still consider radio lectures as one of the most effective and efficient means of reaching a very large class. For instance, at the University of Education, Winneba radio lectures, to some great extent, has been accepted by most of the lecturers and students as one of the effective and efficient ways of delivering instruction to the large class.

During World War II the use of media declined. This might be due to lack of equipment and materials. But during the war view graphs (the name of the first company to produce overhead projectors and the term that some military and industrial personnel still use to describe all overhead projection equipment) were

developed for the Navy for map briefing and instruction (Wittich & Schuller, cited in Sarfo & Adentwi, 2011). Today, an overhead projector is one of the most widely used traditional audiovisual materials in schools/colleges and training organizations.

Soon after the war, the period of expansion in audiovisual instruction began in the industrial and military sectors. This was due in large part to its successful use during the war (Heinich et al., cited in Sarfo & Adentwi, 2011). Audiovisual research programmes were introduced with the interest of identifying principles of learning that could be used in the design of audiovisual materials.

In the 1950s, many leaders in the audio-visual movement became interested in various models of communication. The authors of these models focused on the communication process. They indicate that medium is used to facilitate communication. But communication as a system consists of several elements including medium. So, to use medium effectively to facilitate communication during planning for instruction, it was necessary to consider all the elements of communication process and not focus on just the medium.

Instructional television experienced a tremendous growth. Today most television instruction is offered via videotape with the exception of airing of news events as they take place. In the 1950s, (Skinner, cited in Sarfo & Adentwi 2011), introduced a device called “teaching machine” based on his reinforcement theory. Teaching machine was a mechanical device designed to present a question, has the learner indicates the answer, and then provides the learner with the correct response. Later, teaching machine was replaced by programme instruction by Skinner. Programme instruction is a method of presenting instructional materials printed in small bits; and each of which consists of an item of information, a question to be answered, and the correct answer. Whereas the other media that have already been

discussed are really presentation devices, programmed instruction utilized principles of human learning, is self-instructional the learner alone can use it to achieve his/her learning goals without a teacher. Later, this device was replaced by programmed texts. The period reached its peak during the 1960s and paved the way for other types of instructional approaches such as audio tutorial systems, personalized system of instruction, and program tutoring in the 1970's.

Computer-based instruction of the late of 1970s and 1980s is based on the principles of learning used in programmed instruction by B. F. Skinner. Programmed instruction and other self-instructional approaches in formal education have given way to computer-based instruction. Computer based education is also gradually being replaced by computer-based multimedia and hypermedia.

Textbooks are still in the system and they are the most commonly used instructional resources. Overhead projectors are available and used as presentation device by many teachers. Commercially produced video cassettes are gradually replacing films as the most widely used form of projected media as they are easy to use and the prices are relatively low. Film strips and commercially prepared slides along with audiotapes and printed study guides, are providing basis for self-instructional learning. Today, media and technologies for learning are providing direct educational experiences for students rather than being used just as teachers' aid.

### **2.2.2 Teaching and learning resources**

A study by Makori and Onderi (2014), showed that teaching and learning resources that are available to schools include: library, textbook resources, laboratory resources, furniture resources, sports facility resources, among others resources.

### 2.2.2.1 Library resource

The benefits of a functional and/or good library system are enormous and include (Busayo, 2011; Lingam & Lingam, 2013), the provision of access to books and other reading materials or resources. The immediate benefit of access to reading resources is the promotion of reading culture which in turn underpins the growth and strengthening of literacy skills. The positive outcomes of reading culture is a marked increase in reading fluency, vocabulary acquisition and usage, ability to express ideas and concepts more clearly and accurately (Busayo, cited in Makori & Onderi, 2014). In a school setting, a functional school library system fulfils a number of purposes (Busayo, 2011; Krolak, 2005):

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

Makotsi, as cited in Makori and Onderi, (2014) observes that:

Regular access to books while at school and developing the habit of reading for pleasure have dramatic results in terms of increased vocabulary, text comprehension, and improvement in writing skills and self-expression.



According to Krolak (2005), libraries in general also contribute to other areas such as: lifelong learning, literacy enhancement, informed citizenship, recreation, creative imagination, individual research, critical thinking and ultimately empowerment in an increasingly complex world. Mji and Mkagato (2006) add that library usage contributes to the improvement of the learners' higher order of learning skills such as analysis, problem solving and evaluation. Sadly, in Sub-Saharan Africa, school libraries are either not available or in poor condition or both (Etsey, 2005). However, availability of libraries is one thing and utilising them effectively is another; for instance, Seniwoliba (2013) reports that in Ghana libraries are not fully utilised by either teachers or pupils.

#### **2.2.2.2 Textbooks resource**

The importance of textbooks in the teaching and learning process has been widely recognised in the literature (Gichura, 2003). Textbooks provide structure and order in the teaching and learning process (Johansson, 2006; Triyoga, 2010) and in the classroom, they are considered as useful and effective tools or instruments whose purpose is to facilitate the work of the teacher on a daily basis (Johansson, 2006; Padururu, n.d.). Padururu (n.d.) observes that textbooks give students stability and confidence. Textbooks also provide security and confidence to inexperienced teachers (Triyoga, 2010). However, Glennerster, Kremmer, Mbiti, and Takavarasha (2011) observe that an average child does not benefit from textbooks. Triyoga (2010) observes that: "There is no ideal textbook, ideal for every teacher, ideal for every group of learners and ideal for every teaching situation". And for that reason it is advisable to use them carefully and alongside other aids or other materials (Triyoga, 2010). Similar view is echoed by Indoshi, as cited in Mudulia (2012), who argues

“that the use of textbooks among other materials raises academic standards and efficiency of a school system”. (p. 45). Triyoga (2010) further identifies a number of limitations associated with the use of textbooks. They include inauthenticity, distorting content, may not reflect students’ needs and may deskill teachers.

Poor performance in schools in Sub-Saharan Africa has been associated with shortage or lack of core textbooks (Mudulia, cited in Makori & Onderi, 2014). For instance, Eshiwani, as cited in Musasia et al. (2012) argue” poor performance of mathematics in Kenya is attributed to poor teaching methods and acute shortage of textbooks. Shortage of textbooks may often result in students or pupils sharing textbooks. In some cases one textbook is shared between 6 or more pupils or sometimes no textbook at all (Makotsi, 2011; UIS, 2011). Worse cases of textbook: Pupils ratios have been reported in the literature, for instance in some schools in Malawi the ratios are between 1:40 and 1:100 (World Bank, 2008). In Cameroon the ratio of textbook: pupil is 1:13 (UIS, 2011). In Fiji Islands, the textbooks were either outdated or not available in sufficient number in some rural schools (Lingam & Lingam, 2013). The whole situation of inadequate textbooks is exacerbated by the lack of supplementary instructional materials (Seniwoliba, 2013). Shortage of textbooks therefore put pressure on teachers and also affects the amount of homework they assign to pupils or students.

### **2.2.2.3 Laboratory resource**

Kibirige and Hodi (2013) underscore the importance of laboratories in providing learners with opportunities to experience science by employing scientific research procedures. One such opportunity is engaging learners in the inquiry processes through which they can acquire research skills. Also learners gain in terms of understanding the nature of scientific problem solving (Kibirige & Hodi, 2013).

Similar views are echoed by Owolabi and Oginni (2012), who observed that one of the activities in science is experimentation because it provides a forum for practising the theoretical knowledge gained in the classroom and for demonstrating the psychomotor skills of a teacher and learner, thus reinforcing the fact that students' engaging in laboratory equipment and processes is key to achieving the learning objectives. Students who are not engaged in the laboratory equipment see science as abstract and irrelevant (Owolabi & Oginni, 2012). Kibirige and Hodi (2013), report in their study that learners who use laboratory investigation improve their understanding of physical sciences.

Mudulia (2012) studied the relationship between availability of resources and achievement of science. That study showed that high performing schools have higher availability of laboratory equipment and chemicals or consumables than low performing ones. However, acute shortages of laboratory equipment and consumables have been reported in Zambia, Nigeria, South Africa and Fiji among other countries (World Bank, 2008; Ogunmade, 2005; Lingam & Lingam, 2013; Kibirige & Hodi, 2013). There are also reports of poor quality science materials in Fiji (Lingam and Lingam, 2013). Lack of proper use of laboratories has also been reported in South Africa and Portugal (Kibirige & Hodi, 2013). Other issues highlighted in the literature in relations to teaching science include science teachers lack teaching skills and competency and professional development is absent (Kibirige & Hodi, 2013).

#### **2.2.2.4 Furniture resource**

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

floor (Lingam & Lingam, 2013). In Culcutta, India, a study involving head teachers of primary schools, identified lack of electricity, space and furniture as major challenges facing the schools. In Kenya, many schools in the Nairobi inner-city have inadequate furniture; they are either broken or lost (Dierkx, 2003). Learners need physical comfort when sitting, reading and writing and furniture plays a key role in ensuring the comfort of learners. Four key areas in relation to furniture and the learning process:

- i) Well designed and constructed
- ii) Correctly sized
- iii) Fit for its purpose
- iv) If possible made and repairable locally.

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

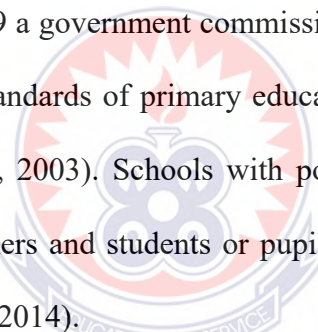
#### **2.2.2.5 Sports facility resource**

It is believed that availability of functional sports facility or resources would result in significant sports and/or physical activity participation among students. Pule (2007) has highlighted the benefits of sports participation and include: unique developmental programmes and opportunities for school learners; positive influence on self-esteem and social competency. Also, participation in sports has been reported to contribute positively to students becoming more disciplined, setting goals, organising time and developing self-confidence (Pule, 2007). However, lack of adequate and/or sufficient facilities has been associated with decline in sports participation (Pule, 2007). In Rwanda, for instance, some schools' sports grounds have been reported to be muddy, uneven and often floods during rainy season

(Grafweg, 2010). Such a state of sports facilities are likely to discourage pupils or young people from participating in sports.

#### **2.2.2.6 Other resources**

One of such resource is the classroom physical environment. Quality physical environment is very important because studies have shown that it can significantly affect student achievement (Victoria Institute of Technology, n.d.). Similar views are echoed by Siddhu (2011) who based on a study in India, observed that quality of classroom conditions have strong positive effects on girls. Adedeji and Olaniyan (2011) note that many rural schools across African countries lack essential infrastructure thus making the learning environment less safe, less efficient and less effective. In Kenya in 1999 a government commission of inquiry on education system in part linked declining standards of primary education to inadequate and unsuitable physical facilities (Dierkx, 2003). Schools with poor physical environment are less likely to attract both teachers and students or pupils (Alhassan & Adzalilie-Mensah, cited in Makori & Onderi, 2014).



#### **2.2.3 The Concept of Instructional Materials**

Instructional Materials as the name suggests, are materials of visual, audio and audio - visual category that helps to make concepts abstracts and ideas concrete in the teaching/learning process. They are also materials which the teacher uses in supplementing his teachings (Olawale, 2013).

Instructional Materials include materials used to facilitate learning for better results. Likewise, it is the use of the chalkboard, charts, models, overhead projectors, films, television and computers in teaching process (Olawale, 2013). Hence, it is not

just the ' use of tools of technology alone but a systematic, integrated organization of machines hardwares and softwares and man, teachers etc. to the solution of problems in education. For example, instructional materials at a distal level may be only represented by the availability and presence of textbooks in classrooms; whereas, at the proximal level, attainment of the grade level and skills required by the materials may be more critical for the teacher and student. For parents, it may be that having "portable" instructional materials, that are visible, durable, and easy to carry may be a significant determinant of the utilization of materials (Olawale, 2013).

The concepts of teaching aids have gone beyond simple aids, instructional technology, and media to communication and educational technology. Instructional aids include those objects that are commercially acquired or improvised by the teacher to make conceptual abstraction more concrete and practical to the learner hence the relevant materials utilized by the teacher during an instructional process for the purpose of making the contents of the instructions more practical and less vague (Iwu, et al., 2011).

In order to ensure an effective teaching learning process, it is important for the teacher to be thoroughly acquainted with the teaching resources and services available to him. The components of instructional materials available to teachers and students are in large numbers and also vary according to the functions of each of them. Pictures (motion and still) graphics, maps, radio - recording and play back and the equipment used to get some of these utilized can be regarded as the components of Audio Visual Aids, or Instructional Aids. Examples of instructional materials are charts, maps, diagrams, comics, models, globes, slides, film strips, television, radio cassettes, video, recorders, cinema, public address system, laboratories and museums, flash Cards, flannel boards, card boards, Calendar, Computers, etc. (Olawale, 2013).

Orakwe (2000) asserts that instructional media are gradually finding their ways into the classroom where modern and versatile teachers are exploiting new ways of transferring learning to the younger generation through the use of prints, visuals and audios or the various combinations of these trios which make up all we have in instructional media. Thus instructional media are the information dissemination devices used in the classroom for easy transfer of learning.

Ema and Ajayi (2004) opined that instructional materials creates change and progress only when the teacher is knowledgeable and knows how to make use of it thus portraying the professional attributes of the teacher and the general knowledge or his creativity in selecting, developing and using instructional materials effectively. Effective communication is the outcome of careful selection of appropriate medium or combination of media available by an effective teacher. Hence an instrument for accelerating the pace of all human transformation, to shake – off inertia in people, achieve mobilization and direct their productive forces in improving their living condition. This shows the impact of the teacher in influencing the future development and growth of a learner.

The success of using teaching aids to meet the teaching objectives demands effective use and communication skills of the teacher to satisfy instructional delivery (Iwu, et al., 2011).

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

the supply of appropriate teaching materials is particularly inadequate in large part of Africa. While this is to some extent a question of finance, the issue of producing and distributing adequate teaching materials for African schools goes much beyond the question of funds. As there is an urgent need not just for any teaching materials and text-books, but for materials that are more closely in tune with the realities and needs of African societies, a major field of lending activity opens up here. Bank Group Loans will support, not just some of the technical assistance needed in modifying and adapting existing textbooks and materials and preparing new materials, but also the production and distribution of these materials in Africa.

Educational Resource Centres in areas where there is a particularly serious shortage of instructional materials could be another example of this general thrust. In this area of quality and internal efficiency, as the majority of the non-salary inputs have a direct effect on the qualitative aspects of education, the Bank Group will give priority to assisting regional member countries identify and maintain minimum standards for non-salary inputs (Eshiwani, 1986).

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



#### **2.2.4 Situation in Ghana**

Soon after Ghana attained independence in 1957, education became a high priority on the government's agenda. There were policies on free basic education, free textbooks for all students and the establishment of district education offices charged with responsibilities for buildings, equipment, and maintenance grants for primary schools. The Curriculum Research and Development Division (CRDD) was set up under the Ghana Education Service in 1974. The basic activities of CRDD are to: (1) Write textbooks and produce teaching materials; (2) Develop syllabuses and supervise their trials in schools; and (3) Monitor implementation through network of subject organizers/circuit officers who are attached to the District Education Service.

During the 1970s, Learning Resource Centres were established in various places throughout the country including Saltpond, Offinso, Bagabaga, etc. The purpose of these centres was to equip teachers with skills needed to design/improvise teaching aids (Non Projected Visuals) such as charts, pictures, drawings, models or real objects by using simple artefacts such as cardboard, paper, plywood, milk tins, etc. Due to lack of personnel and resources to manage these centres, they have been left idle.

In 1987, when the new educational reforms were introduced, Science Resource Centres were established, one in each district. The centres were equipped to facilitate teaching and practical work of science subjects in Senior Secondary Schools. Having realized the importance of instructional media and technologies, today most NGOs have established Audio Visual Centres in some of the communities and institutions to facilitate learning. There is one at Komboni in the Volta Region and one at Wa. Some institutions especially (few colleges sponsored by NGOs) are partially equipped with

audiovisual equipment. The only problem is how to utilize them. Some organizations have audiovisual centres to facilitate the training of their personnel.

### **2.2.5 Importance of Instructional materials**

The purpose of this sub-section is to outline the importance and uses of Instructional materials. Any insights provided by the search will help to determine how to effectively use the Instructional materials.

The new structure and content of Education M.O.E (1974) states that, teaching as an activity can be enhanced or done effectively when there is the use of teaching-learning materials such as wall charts, chalkboard illustrations, diagrams, photographs or pictures. The use of teaching and learning materials is very important at all levels of pre-university education.

This justifies the idea that they make teaching-learning process easier and clearer. These materials should capture students' attention and help recall of learners objectives. It should also elicit students' response and provide feedback. Lisa (1985) states that Instructional media help add elements of reality. Lisa cited examples, including pictures or highly involved computer simulations in a lecture. Pictures effect communication and help to gain or maintain attention. Pictures do not only provide information but are facilitators of information for better understanding of abstract concepts. The importance of using Instructional or Teaching-Learning materials is second to none in the teaching and learning process. Instructional media involves the learners physically in the learning process. Learners observed an experience with little or no comments during the activity. Learners enter into their experience by using their senses.

Teaching comes from the old English word “taecan” meaning to show. The term “teach” is also related to “token” meaning a sign or symbol. Therefore “to teach”, according to these derivations, means to show someone something through signs and symbols (Uljens, as cited in Sarfo and Adentwi, 2011). Knowledge is in the mind of the knower. The expert can only transfer or teach the novice or dispense knowledge and skills to the novice through signs and symbols. This suggests that the concept of knowledge can be defined more precisely when taking into consideration the signs and symbols that represent knowledge.

It will be recalled from the definition of media and mode that media carry the mode (these signs, symbols and sound-stimuli) to the receiver. Therefore the basic functions/role of instructional media is to provide learners with these stimuli and evoke sensation.

It is clear from the above that media play a central role in teaching and learning. What do media actually have to do to help the students or trainees in learning? Basically, media must present students/trainees with stimuli and evoke responses. However, if the analysis of this basic function is carried further, the basic stimulus and response requirement might seem to imply a number of other functions like: (1) Gain student/trainees attention and engage their motivation; (2) Stimulate previous learning; (3) Provide learning/training objectives; (4) Provide new learning stimuli; (4) Activate the students/trainees response (motivation); (5) Give speedy feedback (education); and (6) Encourage appropriate practice (reinforcement).

### 2.3 Curriculum Materials in Educational Environment

International research regarding learning materials has focused primarily on three broad areas, namely, the role and use of textbooks in the improvement of quality of education; the design and implementation of textbook projects and the provision of textbooks in the developing world (Farrel & Heyneman, 1989). Evidence suggested that textbook projects represent a flexible and effective way of improving the quality of education in developing countries. However, improving educational quality is a comprehensive, developmental process that requires time. As Beedy (1966) postulates “it might take a decade or two to make the most of new buildings, new equipment and hardest of all, new freedom” (Verspoor cited in Farrel & Heyneman, 1989, p. 53). Conclusions reached by researchers suggested that textbook development and publishing is a complex and highly technical activity that requires levels of competence in many specialities. It required ongoing support since the process is time-consuming. What is needed, too, is a good infrastructure to ensure development of quality material, a good distribution system, a workable procurement system and teacher training in the use of materials. None of the international research examined the nature of learning materials and their use in facilitating or enhancing learning in the classroom. Equally important is the relationship between materials and pedagogical practices, an aspect that is crucial yet still under-researched.

Brown and Ralph (1994) opined that the use of time can be managed even though time itself cannot be managed. They went on to suggest that well managed learning resources can lead to higher standards of achievement, it therefore behoves teachers to try and organise their daily teaching and learning programmes and activities of the day. They went on to say that the teacher’s commitment to children is the appearance of the classroom, including its cleanliness, order, decorative and

pleasant feel which is sometimes referred to as the climate. Hayes (1996) stated that a neat and well decorated classroom appears inviting to both students and teachers. Schools that are better resourced have an advantage over those that are not in terms of performance since good supply of learning resources facilitates the teaching and learning process in schools.

According to Mankoe (1999), a study conducted on the roles of central government and the communities in financing education under a devolution policy in Ghana revealed that considering the limited resources of the nation, most District Directors of Education were of the view that the government is doing its best with the provision of resources even though what is received is not sufficient. A regional budget officer once explained that in real terms, the total resources flowing to education had been increasing over the years, but whether that increase was sufficient to run education effectively was another matter altogether.

A logical question that arises is the impact the various resources have made on the promotion on education. Knight (1983), pointed out that schools do not really have a policy relating to their own cost and finance. This was the situation existing before the introduction of the Capitation Grant in 2005. With the introduction of the Capitation Grant, school heads are expected to prepare what is known as School Performance Improvement Plan (SPIP) which gives details of how the money allocated to each school is going to be disbursed. This should however, be endorsed by the School Management Committee (SMC) Chairman and approved by the District Directors of Education. Most school heads remain accountable for resources they receive from any source. Farrant (1980) was of the view that a well furnished and stocked library is an effective tool in learning. The existence of a good library is a valuable portion of the school's resources available for use by teachers and pupils.

Lockheed and Verspoor (1991) argued that pre-school and primary education is critical to social and economic development and therefore deserves high priority in the distribution of resources. They went on to say that a job of schooling or educating children in developing countries is significantly more difficult than it is in developed countries. The reason is that in developed countries, students are more likely to attend classes in modern well-equipped buildings with a well designed curriculum, fewer students, more capital materials inputs, more hours of learning time and more qualified teachers and vice versa than their counterparts in developing countries. They continued to say that the learning environment typically has fewer resources and classes consist of more than fifty students many of whom are undernourished, parasite ridden and hungry. They went on to say that developing countries must concentrate their resources on improvements that are known to enhance student learning. According to Landers and Myers (1977), even though school supplies and equipment represent only a small portion of a school's budget, their efficient management are vital to the day-to-day work of teaching personnel. This includes all equipment, supplies and physical facilities.

A study conducted by Atakpa and Ankomah (1998) on the state of school management revealed that in schools which are ineffectively managed, equipment, stores, textbooks, library books and supplies were not mostly used to facilitate teaching and learning. Voights (1998) in a research conducted in Namibia revealed that the provision of adequate learning resources is among the factors considered necessary for teacher-job satisfaction. He went on further to state that about 80% of Namibia teachers felt that the quality of a school building, quality of classroom furniture were very necessary for the teacher to be satisfied with his work and this will

ultimately affect his teaching in a positive way. The report went on to state that the major reason for low education quality stems from lack of facilities and equipment.

The Ministry of Education's (MOE) Headteachers' Handbook (1994) stated that some schools have adequate facilities but others lack a lot of them. Again while some schools have new facilities, others have old ones. The Handbook (1994) went on to state that "As headteachers, your duty is to make sure that the necessary learning resources are available so that teaching and learning can go on smoothly" (p. 84).

Levin and Lockheed (1993) noted that the role of teachers has long been identified as the hub to the delivery and the quality of education. The assumption has been that the academic and professional training of teachers has direct and positive bearing on the quality of teaching performance and consequently on the achievement of students. Levin and Lockheed added that the resources which are available for allocation to education in many developing countries are not adequate for meaningful improvement in teaching and learning.

Carron and Chau (1996) saw the image of a school as being dependent or based on the quality of its infrastructure or the quality of its physical attractiveness. To them, the condition of the structure really counts more than the building material. According to them, a school should be placed where children are supposed to find solace or have some minimal level of comfort in terms of playground, decent and appropriate sanitation and good drinking water among others. They also gave examples from China to show that resources are normally allocated according to a rank order and because of that some schools receive more resources than others. Experimental schools received more resources than centre schools and village schools receive minimal support. This clearly shows that resources are not equitably or evenly distributed.

Lyons (1981), in a research conducted in Nepal found out that an important function of educational administration is to produce adequate materials conducive for education and this includes school buildings and maintenance, teaching equipment and materials and their replacement, furniture supply and maintenance. A minimum amount of materials is needed by both teachers and pupils to ensure the basic materials needed by pupils include textbooks in the various disciplines taught in schools and some are a set of exercise books and other materials such as pens, pencils, erasers and so on. For the teacher to work efficiently, he needs the minimum individual materials needed which include notebooks, pencils and pen in order to plan and organise lessons.

Jacobson, Reavis and Longsdon (1963) stated that the school plant should be seen or considered as an integral part of the learning environment. Being a learning environment, the school plant may serve as a stimulating influence. They were of the view that the role of the school plant in education is realised in the attractive or unattractive appearance of the library, storage facilities, the playgrounds and classrooms with instructional materials. According to the Ministry of Education's Proposal on the Implementation of Deprived Schools Teacher Incentive Scheme (2001), the present management of teaching and learning intends to improve the quality of teaching and learning so as to increase access and participation by providing teachers in general with the pre-service training, in-service training, accommodation, teaching and learning materials required to improve conditions under which the teachers live and work.

Alcorn, Kinder and Schunert (1970) stated that the most important resource of a community is its people. To them, even the smallest village will have some individuals who possess special knowledge and skills which can be tapped for the



benefit and interest of students. They added that the term field trip applies to true-to-life activity engaged in by a school group that leaves the classroom and goes out to the actual source of information for learning purposes. In their view that most field trips are meant to gather first-hand information by students' visits only to place, people or processes to enrich, extend, validate or vitalise information from printed or other sources or to try to uncover entirely new data.

### **2.3.1 Textbooks and Infrastructure Materials**

The value of textbooks in the education system cannot be over-emphasised. Brown and Ralph (1994) were of the view that the textbook is the book required for use by the whole class in studying a particular subject. The following are some of the many advantages of the use of textbooks. They provided the necessary basic knowledge of a particular subject and also ensure the continuity of learning in a situation where there is a change of teacher in a class. Brown and Ralph expanded that, teachers no longer have to rely on words to make their meanings clear and this can be attributed to modern technology. In their opinion, there are now a great variety of materials around that can be used to make meanings more interesting and more detailed. These materials are termed as instructional materials which are used to supplement or complement that of the teacher's tasks. The chalkboard, computers, audio-visual aids such as the radio, television, etc. are all examples of instructional materials.

Aggarwals (1996) research showed clearly that the textbook is one of the most important and vital elements appropriate for effective and efficient teaching and learning process. Textbooks remain essential tool for preserving and diffusing the world's storehouse of knowledge and wisdom. UNESCO had indicated the

importance of a textbook in the following words, ‘classroom teaching depends heavily on the textbooks. In situations in which the teacher is not very well-qualified, the textbook is a guide and support to teaching. For the pupils, the textbook serves as a basis for systematic learning, for re-inforcement, review and further study’ (Aggarwal, 1996, p. 130). Wittach and Schuller as cited in Ofosu-Boateng, (2011) put forward that the chalkboard or the blackboard plays so much role in the classroom that it has become a symbol for education itself. Even in this modern era where whiteboard is being used at some places, the blackboard continues to be a basic means of presenting subject matter. A blackboard is almost always at hand during a lesson or in class yet most people tend to overlook its possibilities as the easily accessible means of demonstrating important ideas. Wittach and Schuller added that even though the blackboard is old, it is the best means for the presentation of concepts which are as new as today’s scientific discoveries.

Altbach (1983) opined that the textbooks deliver the curriculum and are therefore the single most important instructional material. Textbooks are known to be central to achieving at all level and that nothing has ever replaced the printed word as the key element in the educational process. Dale (as cited in Ossei-Anto, 1999) noted that there is a transformation occurring in the instructional materials used in the various schools. Dale thought that traditionally, the textbook, with further explanation by the teacher and workbook has become the main instrument of instruction. The textbook is dominantly becoming an integral part of instructional materials which is also seen as a planned part of a system of learning. He pointed out that the textbook of the future will provide the central organising core of ideas and will be a part of wide range of varied materials of instruction in many courses. We can, therefore, expect

that the reading of books, pamphlets or paperbacks will continue to be of great importance even if a single textbook is not used as the central core of instruction.

Dale pointed out that the textbook helps people to gain experience mainly through reading and that its intelligent use places it in an organised learning system. He continued to say that the following measures can be instituted to help make the best use of instructional materials in schools in order to achieve effective teaching and learning:

- Assist all teachers in the school in ‘audio-visualising’ their curriculum, thereby providing enriching experiences to learners.
- Arrange in-service workshop on different aspects of instructional technology.
- Keep an inventory of community resources – film library, resource centres, museums etc. that the school could use.
- Maintain a library of frequently used films, filmstrips and other audio-visual materials. These materials will be classified and stored for easy, effective distribution.
- Assist teachers in planning, selecting, using, evaluating and developing materials of instructions, with special attention to newer media of communication.
- Organise a well-stocked pool of audio-visual equipment easily available for teacher use. Arrangements must however, be made to keep the equipment in good condition.
- Provide training to teachers in the use of all equipment in the equipment pool and graphic workshop.

- Maintain a workshop to produce graphics, charts and other visual materials for classroom use.

Kelly (1991) conducted a study in Zambia which showed that the supply of teaching materials in schools is in a critical state. According to him, most of the schools that do have textbooks do not have enough of them. Some schools however have none of the necessary textbooks. Haskew and McClendon (1968) stated that an interesting variety of printed materials for students is being marketed today. Educational publishers and other organisations produce an impressive array of hardbound and paper books, booklets or pamphlets, magazines and leaflets suitable for students use. In their view today's textbooks are mostly substantial examples of the application to teaching of both the results of experimentation and the judgment of specialists. They suggested that the modern teacher no longer depends on a single textbook to provide students the entire content of a subject or course. Even if he did, he would be definitely better off than his predecessor of a half-century ago.

Lockheed and Verspoor (1991) stated that instructional materials are essential element in learning and the intended curriculum cannot be easily implemented without them. According to them, instructional materials provide information and opportunities for students to use what they have learnt. Karl and Foltz, as cited in Ofosu-Boateng, (2011) stated that at the early stages of development of some of the modern learning devices, some people believed that they were going to minimise or decrease the use of books as teaching devices but so far no such effect has occurred or is likely to occur. They also advised that books have to be better designed and improved upon to determine their effectiveness. To them, the learning of book is more widely generalised and transferred than learning from more specialised devices.

The Commonwealth Secretariat (1993) saw textbooks as one of the key learning resources in a school. Textbooks are seen as an integral part of the curriculum containing knowledge, explanation and exercise essential to the understanding of each subject. Brunswic and Hajjar (1991) in a report delivered at an IIEP Seminar in Maputo on “Planning Textbook Development for Primary Education in Africa” came out with the notion of the importance of textbooks and related instructional materials in improving the quality of education and students learning achievement in developing countries. A number of empirical studies carried out earlier confirmed this.

### **2.3.2 Criteria for Selecting Instructional Materials**

Choosing the most appropriate for teaching purposes would probably present a problem. Kitao and Kitao (1997) posed the following questions to be considered when selecting teaching aid for teaching:

- Do the materials give a true picture of the ideas they represent?
- Do the materials contribute meaningful content to the topic under study?
- Is the material appropriate for the age, intelligence, experience of the learners?
- Is the physical condition of the materials satisfactory?
- Is there a teacher’s guide to provide a briefing for effective use?
- Can the material in question help to make students better thinkers and develop their critical faculties?
- Is the material worth the time, expense, and effort involved?

- The above outlined instructional strategy and media selection decisions are interrelated and should be done concurrently?

## **2.4 Kinds and Categories of Teaching Aids**

Different instructional materials are available to be used in teaching any subject effectively, but not all topics require the same type and quality of materials. These materials can be purchased, locally made, or improvised or even imported when necessary for effective instructional delivery. Adekeye (2008) listed four major categories of instructional materials; visual aid, Audio-visual aids, auditory aids and printed materials. The criteria for classifying instructional materials or teaching aids include the degree of expertise/technical skills needed for production, nature of the material, physiological parameter or sensory modality, the place the material is produced and miscellaneous characteristics. For effective instructional delivery, instructional materials are summarized under the following categories:

- i. Projected and electronic materials
- ii. Non-projected materials
- iii. Phenomenal and manipulative materials (Iwu, et al., 2011).

Projected and electronic materials are forms of media which could be visual, audio and audio-visual in nature that requires projection and electricity in their use for teaching and learning situation. This can be categorized into tape recorders/recording, radio, slide projectors, overhead projectors, Episcopy video cassette/video disc machine and computer instructional system (Iwu, et al., 2011).

The computer has been found to be the most suitable and versatile medium for individualized learning because of its immense capacity as a data processor used for

different games by children. Nwoji (2002) acknowledge three broad ways by which computer contributes to teaching and learning situation, these are mass instruction, individualized information and group learning. More so, the computer technology has made it possible for teachers and students to avail themselves of interest facilities where they can obtain needed information. The audio (deal with sound only) the visual (as in sight) and audio-visual (a combination of audio and visual i.e. sound and vision) for instance:

Audio: These include such things as Radio, Record players, cassettes, gramophone etc. These aid teaching through the sense of hearing. They can be used in teaching of and at the same time programmes can be expertly presented via them.

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

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

#### **2.4.1 Non Projected Materials**

Anyanwu (2003) asserted that non-projected materials are those materials that do not require any form of projection before they can be utilized. They include chalkboard/board flip chart, specimen, model, textual and non-textual materials. Textual materials are the print materials such as textbooks, journals, periodicals, newspaper among others while the non- textual materials include charts, chalkboards,

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

#### **2.4.2 Phenomenal and Manipulative Materials**

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

Manipulative materials are those instructional materials which the learner handles skillfully and expertly to bring about the desired behavioral changes. They are very important in the development of skills in professional training (Iwu et. al., 2011). Manipulative materials promote complete mastery of the content materials and the specific objectives. They form part of instructional and performance evaluation. The greatest significance of these materials is that they express the channel through which the required learning takes place, hence cutting across all aspects of skills development and mastery learning. They are also vital for effective instructional



delivery because skills such as communication, patience and assertiveness are easily demonstrated, learnt and observed through instructional games.

## **2.5 The Significance of Instructional Materials**

Many educationists agree that instructional materials bring about improvement in the teaching/learning process as well as permit teachers and students to interact as human beings in a climate where people control their environment for their own best purposes (Olawale, 2013). Also, most educators generally and equally agree that the creative use of variety of instructional materials will increase the probability that student would learn more, retain better and bring about the skills they are expected to perform. Apart from their ability to process meaningful sources of information, instructional materials help the teacher with the means for extending his horizon of experience as well as providing the teacher with rich sources of procuring communicative materials which could be produced jointly by the teacher and the students.

Furthermore, several studies have been conducted to test the value of instructional materials and other sensory devices. These researches have proved that instructional materials when properly used in teaching learning situations can accomplish a lot of complex tasks (Olawale, 2013).

The instructional materials also offer real experiences in giving the teacher basis for thinking and understanding. They supply concrete basis for conceptual thinking and therefore reduce meaningless responses of students. At the same time, they overcome the limitations of time, space and size by helping the students to understand things that are too small or too big, or too slow or too fast.

Therefore instructional materials can provide members of a group with a common or joint experience. They also break language barriers and ease difficulties and in the end make the lesson more meaningful. They save time and thus enable students grasp ideals more effectively and faster. Likewise, they help to simplify and emphasize facts and clarify difficulties. They reinforce other teaching methods and materials. They improve the efficiency of other method and effectiveness of teaching process (Olawale, 2013).

However, before a teacher selects his instructional materials, he should consider the following which will serve as his criteria for selection:

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

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

(c) Cost: The instructional materials should be within the reach of the teacher or the school. The cost of the instructional materials will determine whether it can be bought and used or not; otherwise the teacher selects only that instructional material that costs less. In an event of the inability of the school and age limit. It is wrong to bring into the class instructional materials that cannot be easily used to convey meaning of facts, ideas and concept to the pupils because of the limit of the pupils. A primary one school child may not be interested in a lesson in which telescope is used to present facts. This means teaching instructional materials are not just selected on

the basis of their attractiveness but on the basis of certain criteria that will ensure their effectiveness in the teaching and learning processes (Olawale, 2013).

## **2.6 Availability and Accessibility of Instructional materials**

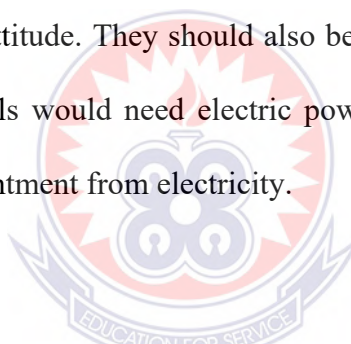
Olawale, (2013) advised that the teacher who wants to use instructional materials should consider the following variables to guide him in the selection of the types to be used in the teaching learning exercise: availability, accessibility, affordability, suitability, simplicity, quality and recency.

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

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

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

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



**Simplicity:** The instructional materials to be used should be simple to operate or manipulate. The teacher should test the materials and ensure their workability before the actual date of use. There should not be any technical problem and where electricity is to be used provision should be made for an alternative power. No teacher should use electric failure as an excuse for non-performance. In a situation where an instrument demands the hands of a technician, he (the technician) should be on hand and the teacher should have an insight into the operation of the instructional materials (Olawale, 2013).

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

**Recency:** The instructional materials should be the best or nearest to the best; it should not be out of date. The instructional materials should reflect current and original thought. Bozimo (2002) advocated the following criteria in the selection of teaching aids:

- i. Appropriateness of the materials to instructional objectives,
- ii. Freedom of the content from bias,
- iii. Quality of the format, print, sound or photography,
- iv. Degree of the quality and variety of the materials,
- v. Availability of the materials and how to operate the materials,
- vi. How reasonable the time and effort are for both the students and the teachers.

Anyanwu (2003) identifies three ways by which the teacher should prepare for the use of teaching aids; by previewing the material before they are brought to the class, the operational level of the intended materials and actual presentation. Thus, the basic guidelines and requirements for utilization and use of instructional materials in effective instructional delivery include the following:

- i. Specification of objectives,
- ii. Maximal fit with instructional tasks,
- iii. Preparation and preview,
- iv. Multidimensional presentation,
- v. Environmental situation and

- vi. Measure of outcomes.

## **2.7 Types of Curriculum Materials**

There are basically three types of teaching and learning materials. These are the audio, visual and audio-visual aids.

### **2.7.1 Audio Aids**

Audio aids, as the words indicate, are things that you can listen to or hear (sounds) that help you in learning. Audio media can make several unique contributions to the teaching-learning process. Heinich, Molenda, Russell and Smaldino (1996) maintained that hearing and listening are not the same although they are of course interrelated. Hearing is a physiological process in which sound waves entering the outer ear are transmitted to the eardrum, converted into mechanical vibrations in the middle ear, and changed in the inner ear into electrically impulses that travel to the brain, but listening is a psychological process that begins with someone's awareness of an attention to sounds or speech patterns through identification and recognition of specific auditory signals. There are a number of audio aids available for instruction. They include teachers, audio tape, records, radio, television and telephone. Although it may seem odd to regard teachers as audio media, they are in fact an excellent audio source since the audio channel is their principal means of communication (Knirk & Gustafson, 1986). In line with this, Walklin (1991) stated that the determining factor in the relative effectiveness of a teacher is the degree and diversity of skills he has in communicating with learners. The types of audio aids that can be used for pre-school children are as follows:

**Record players:** These are means of audio playback. Portable record players may be used in areas of study such as language training, sounds recognition of animals and in ecological studies. Care should be taken to keep records clean and free of finger mark, chalk dust and scratches.

**Tape recorder:** Tape recorder in its own can be very effective for classroom instruction. Pre-loaded tapes consisting of lesson by eminent teachers on any subject can be played in the class. Aggarwal (1995) argued that such instruction become impressive not only because of the novelty but also because of their being well-thought out and planned.

**Radio:** There is hardly any doubt regarding the potential of the radio as an instructional aid. Radio is the most significant medium for education in its broadest sense that has been introduced since the turn of the century (Reynolds as cited in Aggarwal, 1995). By utilising the rich educational and cultural offerings of the radio, children and adults in communities, however remote, have access to the best of the world's stores of knowledge and art. Walklin (1991) recounted the following merits of school radio broadcasting

1. Bringing the school into contact with the world around.
2. Helping in the spread of elementary education.
3. Helping in the promotion of adult education.
4. Assisting in the spread of non-formal education.
5. Enrichment of school programme.
6. Developing critical thinking.
7. Providing opportunities for student participation.

8. Popularising science with a view to developing scientific outlook.
9. Producing information about population education, energy conservation and preservation of wild life.

However, it must be pointed out that, radio broadcast is a one-way communication. Students cannot put questions to the broadcaster and it depends merely on the use of sense of hearing.

### **2.7.2 Visual Aids**

These are items of illustrative matter, such as a film, slide, or model, designed to supplement written or spoken information among kindergarten children so that it can be understood more easily. Visual aid should be large enough to be seen by everyone present and should display the minimum amount of detail required to be effective. Visual materials include all media instruments that involve the use of sight such as books, chalkboards, charts, pictures, posters, toys and objects.

**Chalkboard:** Of all forms of media, the commonest and most readily available form is the chalkboard. Chalkboard work should be kept legible and coloured chalk used for easy differentiation (Walklin, 1991). It is also a common teaching technique that the upper part of the board should be used whenever possible, and when writing on the board, talk to the group and not the board. The following points may be kept in view while using the blackboard:

- Blackboard should be kept clear, so that writing on it could be easily read by students from all parts of the room.
- Writing on the board should be eligible.



- Letters and drawings should be large enough to be seen from the parts of the room.
- Writing should be started from the top left corner.
- Writing should be in straight line.
- Extreme lower corner of the blackboard should not be made use of as writing on it cannot be seen easily.
- Materials on the blackboard should not be covered by standing in front of it.
- Only salient points of the subject matter should be written on the blackboard.
- Diagrammatic visual presentation involving many processes should be prepared in before the beginning of the lesson.
- It should be ensured that blackboard is well-lit by natural or artificial means.
- Duster and not hard or handkerchief should be used in cleaning the blackboard.
- It should be ensured that the blackboard is periodically serviced.

**Textbooks:** Traditionally, the textbook has been the most frequently used instructional material at all levels beyond the primary grades, and in cases it is the only one used by the teacher. In support, Allan and Thomas (2000) state that textbooks are well organised, coherent, unified, relatively up-to-date, and relatively unbiased. That is textbooks are scrutinised by scholars, educators, and minority. Allan and Thomas outlined the following advantages of textbooks as an instructional material:

- A textbook provides an outline that the teacher can use in planning courses, units and lessons
- It summarises a great deal of pertinent information

- Textbook enables the student to take home in convenient form most of the materials they need to learn for the course
- Provides a common resource for all students to follow
- Provides the teacher with ideas regarding the organization of information and activities
- Textbooks include other teaching aids such as summaries and review questions, and
- Relieves the teacher of having to prepare material for the course, thus allowing more time to prepare the lesson.

**Models:** These are substitutes for real things. In support, Farrant (1991) stated that the value of a model is to simplify the real thing they represent and make it easier for the child to understand. A model is a three dimensional representation of a real thing. Models are concrete objects to explain clearly the structure or functions of real things. According to Aggarwal a model is a replica of the original. Being three dimensional, models evoke great interest and simplify matters. Models can be prepared with several kinds of materials like cardboard, plastic, wood, and clay.

**Chart:** A chart is a combination of pictorial numerical or vertical material which presents a clear visual summary. Bar charts, histograms, pie chart, flow and organizational charts are commonly used to represent proportions or relationships. Walkin (1991) stated that the visual impact of charts brings figures to life and tends to be more meaningful than a list of numbers or percentages. Charts serve the following purposes:

- For showing relationship by mean of facts, figures and statistics.

- For presenting material symbolically.
- For summarising information.
- For showing continuity in process.
- For presenting abstract idea in visual form.
- For showing development of structure.
- For creating problem and stimulating thinking.
- For encouraging utilisation of other media of communication.
- For motivating the students.

**Pictures:** The area of visual resources limits pictures to those that are still. These are the direct opposites of motion pictures which are now outside the realms of visual resources per se. It is pertinent to state that the early motion pictures were without sound because the technology of blending motion pictures and sound was non-existent. In Kochhar (2004), pictures can be divided into those that are non-projected and those that are projected. The non-projected still pictures are photographs, illustrations and stereographs (Dale, 1984). Photographs are prints from images taken by cameras and they portray only two dimensions of the objects whose image is captured by the camera. A photograph can be monochromatic or polychromatic. It can be reproduced and used as illustrations in books, newspapers or magazines.

Illustrations are constructions from reality of objects and are different from those which are produced from photography or prints of photographs. Although illustrations serve almost the same purpose as photographs they are more difficult and arduous to produce. Illustrations may be produced by an artist from lithographs or they can be drawings made by the teacher or students to depict an object or scene or

scenery. Once produced, an illustration can be printed in books, magazines or periodicals at less cost than the originals. It is vital to reiterate that an illustration can serve the same purpose as a photograph. Some teachers, in the process of the use of still pictures, are preoccupied with the decorative aspect of their classrooms to the total neglect of what they are meant to do. In the classrooms of these teachers are found beautiful, well mounted pictures on the walls which have practically nothing to do with many lessons at hand. Apart from the fact that the pictures have no relevance to the lessons, they are likely to distract students' attention from many lessons. Also, they are a manifestation of in-operative, stifled and non-progressive teaching-learning environment.

**Transparencies:** The terminology transparency is used with the instrument known as the projector although slides and filmstrips are also transparencies. This is because transparencies are mainly tailored to specific treatment of certain topics. Nonetheless, there are numerous commercially, produced transparencies in the area of biology and chemistry mainly. The teaching of other subjects such as history, art, music and education do not easily lend itself to the use of commercially produced transparencies. The device is such that what is to be presented is produced onto a transparent celluloid material and projected onto a screen by the overhead projector. A transparency can be monochromatic or polychromatic.

**Diagrams:** The use of the word diagram poses problems of meaning. Many teachers are at a lost as to what constitutes a diagram. Perhaps Dale's (1984) explanation will help clarify the issue to a considerable extent. He is of the opinion that a diagram is "... a graphic design that explains rather than represents; a visual symbol made up of lines and geometrical forms, from which pictorial elements are absent" (p. 542). The most crucial aspect of the description is that a diagram is

designed to explain process and phenomenon. A diagram can be used to make clear a sequence either in a text or speech. It can also be used to explain the organizational structure of a school or any institution. A diagram can also be used to explain the cross section of an orange or the nervous system of human beings. So diagrams constitute a collection of visual resources or aids which the teacher or the learner uses to facilitate explanation of points raised in a lesson. The two major divisions of diagrams are graphs and charts.

**Slide:** Slide may be used to stimulate interest, to provide background for a new subject, to summarise the lesson and to present quizzes on the subject-matter. Another important one is the introduction of case studies in the field of human relations.

**Graph:** Graphs are used to illustrate experimental data, mathematical and statistical information and trends (Walking, 1991). When graphs of multiple functions are required, different types of lines or different colours are used to represent each function. Therefore graphs serve to support words and to create interest. Trends may be identified, statistics interpreted and functions related using graphical aids.

**Specimen:** The immediate neighbourhood is a rich source of supply for specimen (Farrant, 1991). As a general rule, living specimens are better visual aids than preserved ones or pictures of them.

**Printed Material:** These are newspapers, charts, maps, textbooks and workbooks which can be used for learning and teaching rest completely on the creativity of the classroom teacher. The more creative and resourceful a teacher is the more useful and efficacious he will find these traditional forms of learning instructional materials. A large proportion of the instructional materials in most schools are printed. The reason is that, they are considered to be the most accessible

and easy to use. The textbook, for instance, is already waiting for you when you first arrive in a school. Stocks of duplicated materials accumulated over the years and left by for predecessors may even be handed to readers. Printed materials will continue to dominate the carry of materials in schools for more years to come; teachers should know and understand certain basic facts about them.

**Wall Chart and Posters:** These are many commercial produced wall charts available for the science teacher who has space to displace them. For effective teaching of science with materials, the teacher should make his own wall charts and diagrams. These wall charts are produced in schools to meet a particular educational need. When the science teacher is planning or selecting a chart for teaching purpose, the following factors should be considered:

- contents.
- teaching situation.
- visual impact, and
- labelling.



### **2.7.3 Audio-Visual Aids**

Audio-visual aids are supplementary devices by which the teacher, through the utilisation of more than one sensory channel is able to clarify, establish and correlate concepts, interpretation and appreciation (Mckown & Roberts as cited in Aggarwal, 1995). That is audio-visual aids in teaching and learning communicates through the senses of the ear and the eye. Aggarwal (1995) recounted the following popular sayings on audio-visual aids. Boredom results from lack of involvement. Audio-visual aids relieve boredom and mental fatigue by providing a focal point for attention. In general, the more senses involved in a learning situation, the better the learning

outcome and ability to recall. Dale (1984) also stated that audio-visual materials supply concrete basis for the conceptual thinking, they give rise to meaningful concepts, enriched by meaningful association, and hence they offer the best antidote for the disease of verbalism.

According to Narayan (1980), the first few years of a child's life are the most impressionable years and the learning experiences provided during these years in or outside schools and other institutional arrangements have a predominant influence on the future behaviour pattern of the child. Seeing, hearing, touching, smelling and manipulating things in the environment tell the child what the world is like. Sensory experiences of all kinds contribute to strengthen and enrich the child's perception. Toys, building blocks, card-games, puzzles as well as audio-visual aids such as pictures, charts, maps, globes, diagrams, flannel graphs, sound-recordings which are basically materials of sight and sound, offer a variety of experiences which stimulate the senses and promote self-activity in children. Audiovisual aids reinforce the spoken or the written words with concrete images and thus provide rich perceptual experiences which are the basis of learning. The various types of audio-visual aids that can be used in kindergartens are as follows:

**Television:** The most widely used audio-visual devices in Ghana are the cinematograph, the television and video record (Tamakloe et al., 1996). The cinematograph is the most widely used. The use of video tape is gaining groups mainly in tertiary educational instruction in the country. The potential advantage of video tapes lies in the fact that control of the equipment and the learning process is placed in the hands of the learner through control over the mechanics of the machine. Instruction by television is available in three modes – broadcast, closed-circuit and video-rewarding (Aggarwal, 1995). The use of television for teaching began in Ghana

in July 1993 and the target group was those in the senior secondary schools. However, its use is encouraged even in the kindergartens.

Walklin (1991) outlined the following important merits of television.

- It permits the use of the best available teacher to teach a subject for a large number of student viewers. It preserves the expert teaching skills of such teachers on video tape or film for later use.
- It provides the teacher an opportunity to observe the instructional methods and ideas of their expert and to increase his own knowledge of teaching methods and stimulate new ideas.
- It provides technical advantages not readily available in normal classroom for illustration or demonstration.
- It makes possible close-up magnification of small objects, components intricate mechanisms, diagrams, etc; giving students a “front- row seat”.
- It directs the attention of the student to the exact detail of object which he should see by eliminating distracting surroundings.
- It makes quick and lasting visual and rural impressions which can often reduce the time necessary to teach and idea or technique.
- It makes it possible to bring large, scarce, new or confined equipment “into the classroom” electronically.
- It incorporates useful film sequences, slides, graphic art and make available teaching aids within a television presentation, tailored to meet the needs of a particular course or subject.



- It brings live demonstrations, video- tape or film presentations to the classroom at the instant or immediately after they occur.

Aside all the significance outlined, education TV medium is limited to one-way communication from teacher to students. Also the total cost of teaching by television is more than normal classroom instruction, unless television is used to reach large number of students at one time or sequentially over a period of time. Another limitation of educational TV is that individual differences of the students are not attended to in a TV lesson.

**Films:** Broadly speaking, a film is multiple media of communication. According to Walklin (1991), film presents facts in a realistic way, dramatises human relations, arouses emotions and transmits attitudes. Thus, a film may be used for the communication of ideas, attitudes and experiences to the masses of people. Ecological documentaries on wildlife reveal life activities of how the ecosystem interacts. An educational film has been described as the greatest teacher because it teaches not only through the brain but very powerful influence on the mind of the children and in shaping their personality. The main aim of educational films is to elevate and educate them according to the patterns and principles set by society (Walklin, 1991). Some of the main advantages of motion pictures which make educational films as powerful audiovisual aid are outlined as follows: First, educational films increase reading interest of the students. Various investigations conducted in the USA show that films producers arouse increased reading interest in children. They are stimulated to get more information about the fact they have observed in a film show. Educational film for instance on wildlife interaction in the ecosystem put before us real learning situations which look to be quite real and actual. The children see something happening and his experience is direct. Therefore, he is deeply impressed.

Lastly, an educational film as an aid motivates teaching. The student takes a great interest. A long study of many weeks may not be able to bring home facts of the ecosystem to the child, but he will at once understand and learn everything about ecosystem if he is shown a film of the events. Walklin (1991) summarises the educational advantages of film as: means of imparting information, development of attitudes, enlarging interest and development of the will to solve problems. Some of the limitation of an educational film may include an element of fiction and unavailability in our country. Also, the process of an education film production is very costly and has some bad effect on eyesight.

**Computers:** Since the advent of the personal computer in the mid 1990's, computers have rapidly become one of the key instructional technologies used in both formal and informal education. Heinich et al. (1996) could not have stated it better when they said "the computer can be used by teachers as an aid to managing classroom activities has a multitude of roles to play in the curriculum, ranging from tutor to student tool. To make informed choices, you need to be familiar with various computer applications, games, simulations, tutorials, problem-solving programmes, word processing and graphic tools, and integrated learning systems. It is extremely important to develop critical skills in appraising instructional software because these are so many major applications of computers in instruction. Computer-assisted instruction (CAI) and computer-managed instruction (CMI). In CAI, the student interacts directly with the computer as part of the instructional activity. This may be in the form of material presented by the computer in a controlled sequence such as a drill-and-practice programme, creative activity. In CMI, the computer helps both the instructor and the student in maintaining information about the student and in guiding the instructional process. In addition, the computer can be an object of instruction as

in courses on computer science and computer literacy. It is also a tool that can be used during instruction to do complex calculations, data manipulations, word processing, and presentation.

## **2.8 Use, management and Storage of Instructional materials**

### **2.8.1 Management of Learning Resources in KGs: Acquisition**

It is the desire of every teacher to plan and present his lesson in such a way that the student retains or remembers as long as possible what he learns without forgetting them immediately. Landers and Myers (1977) suggested that in the acquisition of equipment and instructional materials, there is the need to recognise the needs of the department and the school at large. According to them, the equipment to be secured should be cost-effective without compromising quality. Again, the materials used for the equipment must be of high quality in terms of its construction and workmanship to ensure its strength and durability. Lockheed and Verspoor (1991) were of the view that there should be equitable distribution of learning resources. They said that how well the schools use available resources impacts largely on the enhanced inputs.

Lockheed and Verspoor, went on to say few instructional resources have been shown to improve students' learning or produce uniformly positive results. To them, there was no proper documentation on the availability of learning resources in developing countries but there is the impression or perception that primary pupils either lack textbooks and other materials entirely or share them extensively with other pupils. This really stressed the need for more of these resources to be provided in schools to improve the teaching and learning situations in schools. Jacobson et al. (1963) pointed out that the classroom library consisting of 25-50 books can be the

first step in the development of the school library. The headteacher or the teacher secures materials which are closely related to the unit and subject areas and has them available in the classroom. Assistance can also be sought from the public library. Where there is an unused classroom, the headteacher can use it for library purposes and may assign a teacher librarian to work on part time basis. In a situation where a primary and a junior high school are found in the same building on the same compound, a joint library can be established. They went on to talk about the practice where textbooks are furnished without cost to pupils. Some schools have however tried to compromise by purchasing textbooks and renting them to pupils at less cost to parents.

The MOE's Headteachers' Handbook (1994) shows headteachers how to acquire learning resources by holding discussion or liaise with other stakeholders like the School Management Committee (SMC) or Parent-Teacher Association or District Assembly for assistance to procure new furniture and other learning resources. The Handbook further added that at the beginning of the year, the head should compile a list of items needed by the school. The head should attach the enrolment of the school according to classes and a formal application for the supply of these items accompanies the list that he/she will send to the District Director of Education. The Handbook further suggested that the Ghana Education Service is expected to supply textbooks, stationery and other instructional materials. The supply of items is done throughout the year especially at the beginning of the year. This is the more reason why there is an establishment of a depot in every district in Ghana. Every depot has the responsibility of supplying textbooks, exercise books stationery and other instructional materials and supplies.

Bishop (1985) stated that most developing countries have resource centres which contain all the things which may be useful in their teaching. The resource centres normally contain a collection of books, kits of newspapers, journals, paintings, reference materials, and audio-visuais. In the same vein, Commonwealth Secretariat (1993) stated that the availability of good resources leads to greater satisfaction among the pupils and the teachers. It therefore, behoves on the head of the school to plan, consult, supervise, anticipate and act timely to ensure that the required resources are identified, developed and fully utilised responsibly. The document further indicates the importance of textbooks by stating that:

- The availability, quality and effective use of textbooks constitutes one of the most important factors affecting the quality of a school.
- Textbooks support the curriculum by reinforcing and extending the work of the teacher: Thus good textbooks can lead to better teaching.

Levin and Lockheed (1993) believe that learning is enhanced where textbooks are available for use by teachers. For example schools in Thailand receive sufficient contributions from their local communities to purchase sets of supplementary test materials. Heyneman and Loxley (1983) saw tremendous improvement in the availability of textbooks in developing countries as a result of donor activity. To ensure the availability of textbooks, many developing countries opt for low-quality produced textbooks. To them, the availability of simple instructional materials also counts. In developing countries, most classrooms are supplied with a blackboard. Parents however see to the provision of basic school materials like pens, pencils, erasers, exercise books and paper. Commonwealth Secretariat (1993) was of the view that the calibre of the teachers in the schools and cost are constraining factors which may limit textbooks choice and reduce its frequency of change.

### **2.8.2 Maintenance, Use and Storage in Kindergartens**

Jacobson et al. (1963) based on a research conducted in Columbia, pointed out that there should be a committee in charge of the library in the school to see to lending of books and how to take care of them. According to them, activities or programmes are organised to promote the school library as a centre for cultural participation of the community throughout the school year. Again, all school buildings, equipment and property must be maintained well. It is also important for the head to make a list of the main problems to be tackled and separate them out into different levels of urgency. The head should not singularly undertake this exercise but rather involve both the teachers and pupils. Jacobson et al. added that for the maximum utilisation of the library to be obtained, there is the need for the staff members and the pupils to be thoroughly familiar with the library. They opined that for a library to be termed as a good one there should be rules and regulations in introduction to the library, arrangement, and borrowing, among others. To them, there should be a thorough administrative routine by the head to ensure that pupils find themselves in the library regularly at the same time during the day or week.

Jacobson et al. (1963) said that the school building should not in any way endanger the health and safety of children. Old buildings can be renovated to conform to the standards of modern school plants. Also, playground should be provided with proper drainage and all weather surfaces to maximise its usefulness. Any conditions that prove dangerous to the health or safety of children should be detected and reported to authorities as soon as possible. Lockheed and Verspoor (1991) believed that textbooks must have appropriate content and reading level, be consistent in approach, method and exposition, be properly sequenced, motivate students and be readily taught by less qualified teachers, and still allow good teachers to expand upon

them. They explained that all over the world, few individuals possess the skills needed to write good textbooks and as a result, most textbooks are normally written by committee of experts. According to them, to ensure improvement in the learning of children and quality of education in developing countries, there should be an improvement in the content of textbooks.

The Ministry of Education's Headteacher's Handbook (1994) suggested that textbooks should be properly stamped with the school's stamp and clearly numbered before the books are handed over to the class teacher. Records should be kept and teachers be made to sign for the books received. The teachers after signing must in turn keep a detailed record of the books supplied to each pupil after which it should be forwarded to the head for filling. Teachers and all others in the school who request for books and other materials must be made to sign for them. The head must have a good record of all the learning resources produced for the school.

Landers and Myers (1977) expressed the view that the school head should follow the necessary procedures to carry out major maintenance services of school on the day-to-day basis. Even though it is the responsibility of the central administration to carry out major maintenance services, permission can be sought by the headmaster to carry out some major works. According to them, the headteacher is responsible for the supervision of work that goes on in the school to ensure that the proper thing is done. Received items should be immediately checked against the package to make sure that the right equipment is delivered in good condition.

The United Nations Educational, Scientific and Cultural Organisation (UNESCO, 1985) recommended that in furniture use, the chairs in the classroom should be suitable to ensure that the learners sit with their feet flat on the floor without any pressures on the underside of the thigh. The recommendations end with the

statement that chairs should be designed to enable students to perform mental tasks sitting down for many hours to have contact with teachers. The Commonwealth Secretariat (1993) suggested that textbooks and instructional materials should be properly identified and stored. Pupils should be discouraged from writing in the books, marking pages or underlying words. The Commonwealth Secretariat suggested that in order to maximise the use of an expensive resource like textbook and achieve higher levels of pupils' attainment, there should be a system of textbook management within the various schools. It added that the life of a textbook varies a lot. A major factor being the person looking after the book because a wellbound book which belongs to a serious pupil is likely to last much longer than the one which belongs to a careless pupil who feels no responsibility for it, nor is held accountable by the school or his parents.

The scarce resources demand that clear policies are put in place within each school and be implemented, it further stated, "A school head must manage all school resources efficiently in the interest of the school and therefore full, proper and timely maintenance of these resources is imperative. In order to do this, he or she must institute a system of checks, reporting and stocktaking procedures including the regular supply of replacement parts and servicing" (p. 60). Nasser and Mohammed (1998) in a research conducted in Zanzibar pointed out that lack of cupboards, books, shelves or any form of storage facility makes teaching and learning difficult. This is due to the fact that learning materials got lost easily or were in bad conditions.

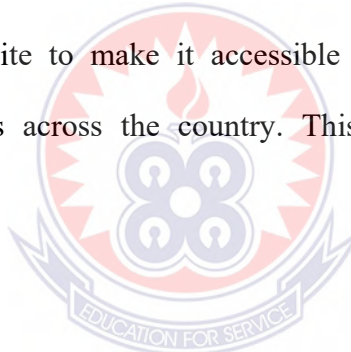
The Ministry of Education (MOE)'s Headteachers' Handbook (1994) points out that it is the duty of the head to periodically inspect all school furniture and the school building as well. It further stated that any minor fault detected should be repaired immediately. Students should also be discouraged from writing on the tables



and chairs and mishandling of furniture. The blackboards must have a fairly smooth surface and must, therefore, be painted regularly. It went on to say that in a school where there is no playing field, the school authorities can contact the chiefs and elders for assistance. There should be a demarcation of the playground. Schools should be beautified by planting flowers and trees which must be pruned from time to time. Lawns should be weeded or mowed. There should be provision of litter bins at vantage points to avoid littering of the compound. In order for the users to have their privacy, there should be a shelter around toilets and urinals, they should be placed in such a way that it does not result in bad smell into the classrooms. Equipment for sports, agriculture, science and Home Economics should be kept safe in secure store rooms which will be locked. Again, agricultural tools should be washed clean of all soil and be made to dry and lubricated.

The Ghana Education Service (GES) in association with UNICEF has developed a sound and comprehensive curriculum document which addresses 6 areas of learning and development. Also, NALAP and TLMP materials have been developed and are in use. The curriculum was deemed by international experts as adequate enough to be used without immediate review. Though the NALAP and TLMP materials should be reviewed, it is recommended that more effort be put into training teachers to use these materials in the child-led, child-centred, activity-based learning. A useful supplementary resource could be a teacher guide on how to use the curriculum and assessment tool for teachers. In lieu of spending on expensive learning materials, teachers should be trained in using available local materials and resources to achieve the expected learning outcomes. They should also be trained to involve community members in activities with the children.

In phase two, the current curriculum, which will be extensively used in phase one, should be reviewed, to make it thematic, activity-based and integrated to promote children's holistic development. The assessment manual should also be reviewed to ensure that it is in line with the curriculum, the Kindergarten development milestones and is user-friendly. Also, NALAP and TLMP should be merged into a single approach (this is already under review) to provide sustainable resources to support the delivery of the new KG pedagogy. The Curriculum, Research and Development Division (CRDD) of GES want 60,000 copies of the curriculum printed and distributed to ensure that every KG teacher, school heads, circuit supervisor in the country and every centre that is carrying out any form of KG Teacher training has a copy. It is recommended that key documentation of this nature be put on the Ghana Education Service website to make it accessible to both private and public KG institutions and teachers across the country. This will also reduce printing and distribution costs.



### **2.9.1 Teacher-Kindergarten Pupil Interactions**

Kindergarten teachers are often required to offer a child-centered classroom climate to ensure that the pupils are more on-task and engaged in learning (Pianta et al. 2002). The emotional support that teachers give to students provides a solid foundation for developing the motivation and cognitive skills critical to positive long term academic outcomes (Crosnoe et al. 2004; Greenberg et al. 2003; Gregory & Weinstein 2004; Pianta et al. 2002; Rimm-Kaufman et al. 2005; Roeser et al. 2000; Zins et al. 2004). Indicators of social adjustment in school settings include self-control, emotional regulation, getting along with peers, and enjoyment of school (Birch and Ladd 1997; Wentzel 1996). Social development and learning are fostered

when a teacher is warm, caring, and responsive to children's interests and feelings. Teachers are generally more successful in supporting these characteristics when they:

- (1) Consistently demonstrate that they care about their students as individuals;
- (2) Validate children's interests and feelings; and
- (3) Support children's efforts to regulate themselves.

An aspect of a kindergarten teacher's role is to monitor children's social activities and provide positive ways of solving problems, settling disputes, and keeping interactions fair and inclusive. Teachers must be sure to provide children with ample time and opportunities to interact through cooperative work and problem-solving activities, in conversations, and during group discussions. The teachers are required to model appropriate behaviors by helping children label emotions and link them to appropriate ways to respond. Explicit and consistent rules with clearly described age appropriate consequences should be applied. Children who need social assistance to find play partners should be coached by teachers in strategies for entering and participating in activities with classmates. This might include directly teaching the words a child needs to communicate ideas and feelings while negotiating differences. Warmth and genuine acceptance of each child's social learning process should be apparent in every teacher-child interaction.

The Kindergarten pupils can possibly develop self-regulation attitude through high-quality teacher-child relationships. Successful self-regulation means that a child can purposefully monitor him or herself. Children who can self-regulate are able to control their social-emotional and cognitive processes. The child can exert self-control, think about what he or she is learning, consider alternate perspectives, and adjust the amount of mental energy needed based on a task's level of difficulty. However, learning to self-regulate requires daily participation in experiences that:

- (1) Involve children being regulated by a teacher or classmate;
- (2) Give children the

opportunity to regulate others; and (3) Provide opportunities for children to voluntarily practice regulating themselves (Leong et al. 2009). The New Jersey Department of Education in 2011 therefore stipulated kindergarten guidelines for teacher-child interactions including: (1) Teachers foster children's trust, security, and social development through warmth, caring, and responsiveness to individual children's interests and feelings; (2) Teachers recognize that academic learning occurs in a social context; (3) Teachers use space and materials, encouragement for socio-dramatic play, cooperative work experiences, problem-solving activities, conversations, and group discussions as ongoing opportunities for children to practice social skills; (4) Teachers accentuate children's pro-social behaviors while actively supporting self-regulation and learning; and (5) Teachers maximize positive behavior and social interactions through careful design of schedules, activities, and classroom space.

### **2.9.2 Organisation of Kindergarten School for quality education**

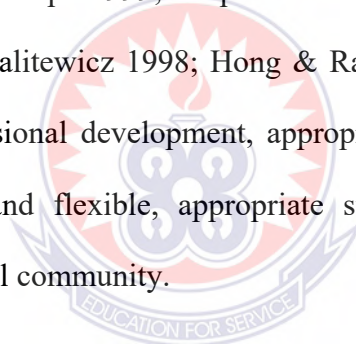
Organizing a developmentally appropriate kindergarten program requires special consideration for the unique characteristics and needs of young children. The developments practices of the New Jersey Department of Education have been reviewed as a bench for a possible inculcation into the Ghanaian curriculum for Kindergarten pupils.

### **2.9.3 Readiness**

Kindergarten retention, referrals for testing, and families delaying entry to kindergarten are telling indicators that a kindergarten program is not in tune with the developmental needs of children (Graue 2009). All age-eligible children should have access to a high-quality kindergarten program that is ready for each child.

Kindergartners should not be subject to suspension, expulsion, or retention. Rather, the kindergarten curriculum and corollary school supports should be flexible, fitting each child who is legally eligible to attend (Graue 2009).

Retention of children in kindergarten has been the topic of numerous studies. While some teachers and administrators would argue that delaying kindergarten entrance for a year or adding an extra year of kindergarten prior to promotion to first grade gives children additional time to mature, many studies indicate that retention (even when called junior kindergarten, transitional kindergarten, or pre-first grade) has a negative effect on student achievement, attitude toward school, and attendance. There is also a strong correlation between delayed kindergarten entrance and later student dropout rates (Rudolph 1999; Shepard & Smith 1988; Kenneady 2004; West, Meek & Hearst 2000; Balitewicz 1998; Hong & Raudenbush 2005). Alternatives to retention include professional development, appropriate class sizes, student support that is individualized and flexible, appropriate student assessments, and family involvement in the school community.



#### **2.9.4 Full Day Kindergarten**

A range of studies indicate that learning gains from full day kindergarten programs are at least as great as and, in many instances, greater than those of half day programs. Findings from Walston and West (2004) and Housden (1992) indicate that children enrolled in full day, developmentally appropriate kindergarten programs made greater gains in reading, language arts, and mathematics achievement, than those enrolled in half day programs. A full day schedule allows more time for formal and informal learning activities across the content areas. It provides ample time for projects, engagement in the arts, individualization, and social interaction with adults

and other children. Children have more time to ask questions and explore topics (Brewster 2002; Housden 1992). Full day kindergarten, along with well-designed preschool education programs for three- and four-year-olds, has been shown to reduce long term costs for special and remedial education (Housden, 1992; Barnett, 2002) and reduces the number of children who are held back a grade (Brewster, 2002).

Full day kindergarten accommodates the schedules of working families and eliminates the need for children to be transported to alternate child care settings (Housden, 1992). School districts with half day schedules often have difficulty arranging after school care for kindergartners.

## **2.8 Challenges of Kindergarten Teachers in the Use of Instructional Materials**

While instructional materials are becoming more and more popular day by day, there are still some challenges to be faced and solved. Aggarwal (1995) recounted the following problems:

- Apathy of teachers: Teachers in general are yet to be convinced that teaching with words alone is very tedious, wasteful and ineffective.
- Indifference of students: The judicious use of aids arouses interest but when used without a definite purpose they lose their significance and importance.
- Absence of electricity: Most of the projectors, radio and television cannot work without the electric current which is not available in a large number of schools.
- Lack of facilities for training: Training colleges or specialized agencies should make special provision in the use of these aids.
- Language difficulty: Most educational films are English. We should have these films and documentaries in Akan and other Ghanaian languages.

- Not catering for local needs: little attention is paid in the production of audiovisual aids to the local sociological, psychological and pedagogical factors.
- Improper selection of films: Films are not selected according to the classroom needs.

### **2.8.1 Staff Qualifications**

Teacher qualifications, experience, and skills are important variables in determining classroom quality and the chances of children's school success. In a New Jersey study of kindergarten classrooms in former Abbott school districts (Seplocha & Strasser, 2008), teachers who held a Preschool through Grade 3 (P-3) endorsement had, on average, higher scoring classrooms on all measures than the classrooms of teachers who held standard elementary school endorsements. The research also noted that those kindergarten teachers with preschool experience scored higher than those without a preschool background. Those whose experience prior to kindergarten was in teaching higher grades, scored lower, on average. *The National Association of Early Childhood Teacher Educators (NAECTE) recommends that kindergarten through third grade teachers have:* (1) An early childhood teaching credential; and (2) Professional preparation standards consistent with those established by the National Association for the Education of Young Children (NAEYC).

### **2.8.2 Class Composition and Staffing**

According to the American Educational Research Association (2003), small classes have the greatest impact when experienced in the early grades. Given the nature and needs of kindergarten children, it is optimal that a teacher assistant work

alongside the teacher in any kindergarten classroom. New Jersey Administrative Code regulates: Classes of no more than twenty-five children and a full-time teacher (N.J.A.C. 6A:32); except for: Classes of no more than twenty-one children with a full-time teacher and a full-time teacher assistant in school districts with forty percent or more “at risk” students as defined in P.L. 2007, c.260. There is also the need for the inclusion of children with disabilities to the maximum extent possible. These practices could be given the necessary consideration in the design of the curriculum for Kindergarten Pupils in Ghana.

## **2.9 Summary**

This involves the major issues that have emerged from the literature review and these are; the concept of pre-school education; nature of instructional materials; availability of instructional materials; accessibility of instructional materials; use of instructional materials; and challenges of teachers in the use of instructional materials. These have linkage with the objectives of the study as it seeks to explore the nature, access and use of instructional materials in kindergarten schools.



## CHAPTER THREE

### RESEARCH METHODOLOGY

#### 3.0 Introduction

This chapter describes the research design, the population, the sample and sampling procedures, the instrument and the pilot-test that was adopted for the study. Also, the procedures that the study followed for data collection and data analyses are also discussed.

#### 3.1 Research Design

The study employed a descriptive survey design, based on the post-positivist worldview. This was because the study sought to solicit responses from basic school kindergarten teachers from the Atwima Nwabiagya District Education Directorate in order to understand the real issues concerning the nature, access and extent of use of instructional materials among kindergarten teachers in the district.

According to Fraenkel and Wallen (2002), the descriptive survey is often directed towards determining the nature of a situation as it exists at the time of the study. Creswell (2008) added that the descriptive survey design is used to determine individual opinion about a policy issue or programme. This design, according to Creswell (2003), provides useful information for decision-makers since it has the advantage of measuring current attitudes or practices. Also Pilot and Hungler (2003) explained that descriptive survey has an advantage of producing a good amount of responses from a wide range of people. The descriptive survey design is appropriate when a researcher attempts to describe some population or aspect of population by selecting unbiased samples of individuals who are asked to complete questionnaire, interviews or test (Fraenkel & Wallen, 2002).

The study also adopted the quantitative method/approach in gathering data in order to validate responses. It used the quantitative design to obtain the data. Questionnaire was used to gather quantitative data. According to Bless, Higson-Smith and Kagee (2007), quantitative approach enables relevant information to be obtained from the sample group through a questionnaire. They further posited that quantitative research relies primarily upon measurement and uses various scales. Numbers form a coding system by which different cases and different variables may be compared. Systematic changes in scores are interpreted or given meaning in terms of the actual world that they represent. They indicated that numbers have the advantage of being exact. Another advantage of numbers is that they can be analysed using descriptive and inferential statistics.

Unlike quantitative data, qualitative data do not require serious statistical analysis, albeit time consuming and consequently expensive (Strauss & Corbin, 1998). These data can be derived from face-to-face interviews, focus group discussions or observation which usually tends to be time consuming to collect.

### **3.2 Population of the study**

The study population comprised all public basic school KG teachers in the Atwima Nwabiagya District of the Ashanti Region. There were 93 primary schools in the district with 269 KG teachers. A further breakdown of the KG teachers' population is presented in Table 3.1. In all, the population for the study was 269 KG Teachers.

**Table 3.1: Breakdown of Public Basic Schools in the District by Circuit**

Circuit	No. of Primary School	No. of KG Teachers
Abuakwa	12	35
Akropong	8	20
Adankwame	10	30
Barekese	9	22
Nkawie	11	28
Toase	11	34
Spaase	11	36
Mfensi	9	30
Asuofua	8	20
Wurapong	4	14
<b>Total</b>	<b>93</b>	<b>269</b>

Source: District Education Directorate (2013).

### 3.3 Sample and Sampling Techniques

Analyses are best conducted when conducted on samples that are still ‘fresh’ (Sarantakos, 2005). In line with this, a sample of the population was used for the study. According to Wiersma (1991), with a small number, results are much faster than a whole population. It also produces high quality of work since accuracy can be provided by a sample than a whole population. The appropriate sample size for the study was calculated using the De Vaus (2002) sample size population proportion formula. Based on the formula shown on the next page, the appropriate sample size for the study was 160.

$$n = \frac{N}{1 + N(\alpha^2)}; n = \frac{269}{1 + 269(0.05^2)}; n = 269 / 1.6725; n = 160$$

$n$  = Sample size

$N$  = Population

$\alpha$  = Significance level

**Table 3.2: Allocation of KG Teachers by Circuit**

Circuit	No. of KG Teachers	Sample allocation
Abuakwa	35	21
Akropong	20	12
Adankwame	30	18
Barekese	22	13
Nkawie	28	17
Toase	34	20
Sepase	36	21
Mfensi	30	18
Asuofua	20	12
Wurapong	14	8
Total	269	160

Source: District Education Directorate (2013).

The 160 KG teachers selected from the Atwima Nwabiagya District were further distributed among the 10 circuits proportionately using probability proportional to size (PPS) that is the number of KG teachers of a circuit divided by the population (269) and then multiplied by the sample size (160) to get the sample allocation for each circuit. The results are summarised in Table 3.2. The KG teachers were selected randomly using the simple random sampling (i.e., table of random

numbers). A register of KG teachers in each circuit was compiled and fed into computer software called the SPSS. Then the Random Number Generator function in the software was commanded to select names per the sample size specified. These selected respondents then formed part of the samples to be administered questionnaires. For example, in selecting 21 KG teachers from the Abuakwa Circuit, the names of all the 35 teachers were fed into the software and the software commanded to randomly choose 21 names. The selected names therefore constituted the respondents from this circuit. This technique eliminates all forms of biases in the selection process.

### **3.4 Research Instruments**

The instrument used in the study was a questionnaire. According to Fink (1995), the questionnaire as a tool is preferred because of the following advantages:

- It is less expensive than other methods such as interviews and observation.
- The use of questionnaire promises a wider coverage since the researcher can approach respondents more easily than other methods.
- It is stable, consistent and uniform, without variation.
- It can be completed at a faster rate as compared to the others.

A questionnaire was developed for the respondents to answer based on the research questions. The questionnaire consisted of closed ended items. According to Sarantakos (2005), closed-ended items require less effort to respond to, easy scoring and promotes objectivity on the part of the respondent. However, they are limited to only the areas indicated in the questionnaires, and do not give room for self-expression. Notwithstanding the lapse of closed-ended items in restricting the

responses of respondents, its adoption ensures effective editing and analysis of data. The instrument was segmented into sections according to the research questions posed above. Refer to appendix A for details of the questionnaire.

### **3.5 Pilot-Testing of Instruments**

Polit and Hungler (2003) regarded pilot-testing as a small-scale version or trial run done in preparation for the actual study. The purpose of a pilot-testing is to ensure the level of validity and reliability of the data collection instrument. One of the advantages of conducting a pilot-testing is that it might give advance warning about where the main research project could fail, where research protocols may not be followed or whether proposed methods or instrument are inappropriate or too complicated. According to De Vaus (1993), pilot-testing is important for the following reasons:

- Developing and testing adequacy of research instruments,
- Identifying logistical problems which might occur using proposed methods,
- Determine what resources (finance and staff among others) are needed for a planned study, and
- Estimating variability in outcomes to help in determining sample size.

The instrument was pilot-tested in public kindergarten schools in the Ahafo Ano South District also in the Ashanti Region. This district was chosen because it shares similar educational characteristics particularly with respect to availability, accessibility and the use of teaching and learning materials. It involved 10 KG teachers.

To establish the reliability level of the questionnaire, Cronbach's Alpha reliability test was conducted and measured against the acceptable range of 0.60 or above as stated by Cohen (as cited in Leech, Barrett and Morgan, 2005). The reliability test for each segment of the questionnaires yielded Cronbach's alpha scores of 0.79, 0.73, 0.65 and 0.8 respectively, refer to Appendix B. Validity, according to Fraenkel and Wallen (2002), revolves around the defensibility of the inferences researchers make from data collection through the use of an instrument. The issue about validity, therefore, has to do with the instruments used to collect data and whether the instruments permit the researchers to draw valid conclusions about the characteristics of the individuals about whom they collected the data. The validity of the instruments for this study was, therefore, established by making the instruments available to my supervisor and colleagues in the Department of Educational Leadership of the Faculty of Education and Communication Sciences of the University of Education, Winneba, Kumasi Campus (UEW-K).

### **3. 6 Data Collection Procedure**

Before going to the field to collect the data, an introductory letter was requested from the Head of Department of the Department of Educational Leadership, University of Education, Winneba to introduce me to the District Director of Education, circuit supervisors, headteachers and KG teachers. Data was collected over a period of three months. Specifically, questionnaires administration and retrieval was envisaged to cover two and half months because the researcher had to cover the entire Atwima Nwabiagya District. Out of the total questionnaires of 160 sent out for administration, 100 were completed and retrieved by the researcher. This therefore produced a valid and reasonable response rate of 62.5%.

### 3.7 Data Analysis

To Ary, Jacobs and Razavieh (1990), data analysis is the ordering and breaking down of data into constituent parts and performing of statistical calculations with the raw data to provide answers to the research questions which guided the research. First, the retrieved questionnaires were serially numbered, coded and scored. The Statistical Product and Service Solutions (SPSS version 20.0) was used to capture and analyse the data. Basically, data gathered in this research were analysed descriptively (thus, using tables, frequencies, percentages and mean).

In order to answer research question one, 16 learning materials were sub-zoomed under the first thematic area for respondents to identify their availability or unavailability; 12 learning materials were listed under the second thematic area for respondents to establish their usage. Respondents were also presented with 7 possible reasons for using learning material to indicate their level of agreement on a 5 point-likert scale from 1=strongly disagree to 5=strongly agree to understand whether they know the reasons for using TLM'S in teaching; 9 constraints to access learning materials were listed for respondents to tick their level of agreement with the statement on a 5 point linkert scale of 1 strongly disagree to 5= strongly agree; 8 Constraints as to whether respondents are competent in using TLMS in tg. Were presented for there to indicate their level of agreement on a 5-point likert scale of 1=strongly disagree to 5=strongly agree.



## CHAPTER FOUR

### FINDINGS

#### 4.0 Introduction

The study investigated the nature (type), access and use of instructional materials in kindergarten schools in the Atwima Nwabiagya District in the Ashanti Region. The purpose of this chapter is to present the findings of the study and discuss the data as guided by the research questions. The first section of the findings presents the demographic characteristics of respondents. The second section presents the research findings and discussions based on this study as a result of the following research questions:

1. What is the nature (type) of instructional materials for kindergartens in the Atwima Nwabiagya District?
2. How often do the kindergarten teachers use instructional materials in teaching and learning?
3. What are the challenges in the availability and accessibility of instructional materials in kindergarten schools in the district?
4. What are the challenges in the teachers' usage of instructional materials in kindergarten schools in the district?

#### 4.1 Socio Demographic Characteristics of Respondents

This section of the study describes the socio demographic characteristics of the studied kindergarten teachers of the Atwima Nwabiagya District. The major demographic information discussed included teaching status, gender, age of

respondents, highest level of education, professional status and years of working experience as KG teacher. The result of the demographic information of the respondent kindergarten teachers in the Atwima Nwabiagya District is presented in Table 4.1.

**Table 4.1: Socio Demographic Characteristics**

Socio Demographics	Frequency	Percent
<b>Gender</b>		
Male	24	34.0
Female	76	76.0
Total	100	100
<b>Age of respondent</b>		
Below 30 years	7	7.0
30-39 years	57	57.0
40-49 years	19	19.0
50+ years	17	17.0
Total	100	100
<b>Highest educational qualification</b>		
SSCE/WASCE	15	15.0
Diploma	35	35.0
Bachelor degree	50	50.0
Total	100	100
<b>Professional status</b>		
Professional teacher	85	85.0
Non-professional teacher	15	15.0
Total	100	100

Socio Demographics	Frequency	Percent
<b>Years of experience as a KG teacher</b>		
Less than a year	11	11.0
1-5 years	44	44.0
6-10 years	21	21.0
11-15 years	11	11.0
16-20 years	13	13.0
21+ years	0	0.0
Total	100	100

Source: Field Survey, 2015

The result of the Table 4.1 shows that majority (76.0%) of these respondents were females. The majority (57.0%) of the surveyed teachers were between the ages of 30 and 39 years whereas 19.0% were between 40 and 49 years. The teachers above 50 years were 17%. This implies that the kindergarten teachers in the district are predominantly within the youthful age. Though 35.0% of the surveyed teachers have highest academic qualification of diploma, the majority (50.0%) have bachelor's degree in teaching. However, 15.0% of the teachers have highest qualification of SSCE or WASCE certificate. The majority (85.0%) of the respondents are professional teachers. Furthermore, the majority (65.0%) of the studied teachers have between 1 to 10 years of teaching experience as kindergarten teachers, 24% teachers have between 11 to 20 years of teaching experience as kindergarten teachers while 11% teachers have less than one year of teaching experience as kindergarten teachers in Ghana.

## **Research Question 1: What is The Nature of Instructional Materials for Kindergartens in the District?**

### **4.2 Nature (type) of Kindergarten Curriculum Materials**

This section of the study presents the type of the curriculum materials of kindergarten schools in the Atwima Nwabiagya District. To achieve this objective, respondents were presented with 16 basic types of curriculum materials usually used in kindergarten schools. Respondents were asked to tick where appropriate on these constraints, availability/unavailability, sufficient/insufficient, homemade/manufactured and good/poor in condition. This helped to determine the number of respondents out of the 100 retrieved questionnaires who ticked availability/unavailability and those who ticked availability continued to tick whether the materials available were sufficient/insufficient, homemade/manufactured and in good/poor condition but those who ticked unavailability did not continue to tick again as instructed by the researcher. The total frequency (F) and percentages (%) of responses for all the listed variables example, availability/unavailability, sufficient/insufficient were calculated using the average of the values. The result of the section is descriptively presented in Table 4.2 and Figure 4.1.

**Table 4.2: The Nature of the Curriculum Materials of KG**

Type of Curriculum Materials	Avail. F (%)	Unavail. F (%)	Suff. in No. F (%)	Insuff. in No. F (%)	H/mad. F (%)	Manuf. F (%)	Good cond. F (%)	Poor cond. F (%)
Story books	12(14.1)	73(85.9)	0(0.0)	12(100.0)	4(33.3)	8(66.7)	4(33.3)	8(66.7)
Language related games	4(5.4)	70(94.6)	0(0.0)	4(100.0)	0(0.0)	4(100.0)	0(0.0)	4(100.0)
Puzzles	15(20.3)	59(79.7)	0(0.0)	15(100.0)	4(26.7)	11(73.3)	4(26.7)	11(73.4)
Magazines	11(12.9)	74(87.1)	0(0.0)	11(100.0)	0(0.0)	11(100.0)	2(18.2)	9(81.8)
Picture encyclopaedia	22(25.9)	63(74.1)	11(50.0)	11(50.0)	11(50.0)	11(50.0)	8(36.4)	14(63.6)
Phonic charts	14(15.7)	75(84.3)	0(0.0)	14(100.0)	14(100.0)	0(0.0)	4(28.6)	10(71.4)
Mathematics charts	68(68.0)	32(32.0)	0(0.0)	68(100.0)	4(5.9)	64(94.1)	15(22.1)	53(77.9)
Whole word flashcards	35(41.2)	50(58.8)	11(31.4)	24(68.6)	25(80.6)	6(19.4)	9(25.7)	26(74.3)
Single and double letter flashcards	58(68.2)	27(31.8)	18(31.0)	40(69.0)	29(53.7)	25(46.3)	25(43.1)	33(56.9)
Number-related flashcards	51(63.0)	30(37.0)	22(43.1)	29(56.9)	47(92.2)	4(7.8)	23(41.2)	28(58.8)
Bottle tops	32(32.0)	68(68.0)	15(46.9)	17(53.1)	4(12.5)	28(87.5)	4(12.5)	28(87.5)
Containers	53(53.0)	47(47.0)	0(0.0)	53(100.0)	34(64.2)	19(35.8)	3(5.7)	50(94.3)
Bottle cock	44(44.0)	56(56.0)	34(77.3)	10(22.7)	18(40.9)	26(59)	37(84.1)	7(15.9)
Construction toys	56(56.0)	44(44.0)	34(60.7)	22(39.3)	0(0.0)	56(100.0)	33(58.9)	23(41.1)
Paint	23(23.0)	77(77.0)	18(78.3)	7(21.7)	0(0.0)	23(100.0)	21(91.3)	2(8.7)
Paint brushes	22(22.0)	78(78.0)	8(36.4)	14(68.6)	0(0.0)	22(100.0)	19(86.4)	3(13.6)
Total	33(36.3)	58(63.7)	11(33.3)	22(66.7)	12(37.5)	20(62.5)	13(40.6)	19(59.4)

Percentages are in Parentheses

Source: Field Survey, 2015

The result of Table 4.2 shows that the majority (85.9%) of the surveyed respondents believe their schools do not have story books for teaching at the Kindergarten level. There are also insufficient (100%) story books for Kindergarten schools in the district that have them. The greater proportion of the available story books of the schools are manufactured as indicated by 66.7%. The available story books are in predominantly poor condition as indicated by 66.7% by the respondents of the schools that have story books. Majority (94.6%) respondents of the studied district do not have language related games. The available language related games (5.4%) in the Kindergarten schools in the district are highly insufficient and poor in condition. Also, 79.7% of the surveyed respondents indicated that their respective Kindergarten schools do not have puzzles in teaching pupils. The schools that employ puzzles in teaching have insufficient number, 73.3% manufactured and the puzzles are also said to be in poor conditions as indicated by 73.4%.

The majority (87.1%) of the respondents indicated that their respective schools rarely use magazines in teaching at the kindergarten level. The available magazines (12.9%) are also insufficient (100%) for the schools that use them in teaching at the Kindergarten level and these magazines are largely manufactured (100%) and in poor condition (81.8%). The study further revealed that curriculum materials such as picture encyclopaedia (74.1%), phonic charts (84.3%), and whole word flashcards (58.8%) are largely unavailable.

Though varying forms of cards including, single and double letter flashcards and number-related flashcards are available with 68.2% and 63% with the exception of whole-word flashcards which recorded 41.2% availability in the surveyed Kindergarten schools for teaching, they are barely sufficient for better and effective teaching because whole word flash card were 68.6%, single and double letter

flashcards were 69% and number-related flashcards were also 56% for insufficiency. To complement the manufactured cards, the larger number of them is home-made with whole word flashcards (80.6%), single and double letter flashcards (53%) and number related flashcards (92.2%). The respondents recorded for whole word flashcards (74.3%) , single and double letter flashcard (56.9%) and number related flashcards (58.8%) in that order.

Curriculum materials such as bottle tops (68%) and cocks (56%), paints (77%) and paint brushes (78%) were limited in availability in the Kindergarten schools in the district as indicated by the respondents. Therefore the available ones, containers (53%) and construction toys (56%), could not suffice the demand of the district for effective teaching at the Kindergarten level.

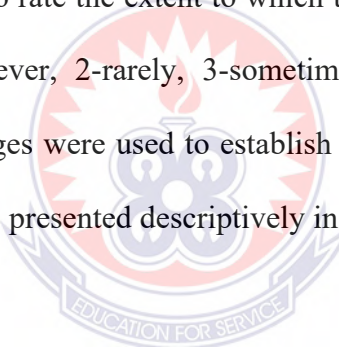
In summary, looking at the total percentages, majority (63.7%) of the respondents indicated that all the types of instructional materials listed on the questionnaire for effective teaching at the kindergarten level were unavailable while minority (36.3%) of the respondents indicated that the listed instructional materials were available. Majority (66.7%) also indicated that the available instructional materials were insufficient and only a few (33.3%) of the respondents indicated that the instructional materials were sufficient. Majority (62.5%) of the respondents indicated that the instructional materials available were manufactured while minority (37.5%) indicated that the instructional materials available were homemade. Majority (59.4%) of the respondents also indicated that the instructional materials available were in poor condition while minority (40.6%) of the respondents indicated that the instructional materials available were in good condition.

In conclusion, majority of the instructional materials were not available, only a few which were available too were insufficient, manufactured and were in poor condition.

## **Research Question 2: How often do the Kindergarten Teachers use Curriculum Materials in Teaching and Learning?**

### **4.3 Extent of Use of Curriculum Materials**

The extent to which Kindergarten teachers use curriculum materials is examined using likert scale type in this section of the study. To accomplish this objective respondents were asked to rate the extent to which they use twelve learning materials on a 4-point scale; 1-never, 2-rarely, 3-sometimes, and 4-often used. The total frequencies and percentages were used to establish the extent of usage. The result of this section of the study is presented descriptively in Table 4.3 and Figure 4.2.





**Table 4.3: Extent of usage of Curriculum Materials**

Learning materials	Often used (4) F (%)	Sometimes used (3) F (%)	Rarely used(2) F (%)	Never used(1) F (%)	Mean
Story books	16(16.0)	21(21.0)	23(23.0)	40(40.0)	2.13
Language related games	7(7.0)	17(17.0)	19(19.0)	57(57.0)	1.80
Puzzles	13(13.0)	16(16.0)	9(9.0)	62(62.0)	1.74
Magazines	8(8.0)	16(16.0)	25(25.0)	51(51.0)	1.81
Newspapers	3(3.0)	21(21.0)	21(21.0)	55(55.0)	1.72
Picture encyclopaedia	9(9.0)	17(17.0)	15(15.0)	59(59.0)	1.76
Phonic charts	26(26.0)	34(34.0)	8(8.0)	32(32.0)	2.54
Whole word flashcards	23(23.0)	38(38.0)	12(12.0)	27(27.0)	2.57
Single and double letter flashcards	17(17.0)	54(54.0)	12(12.0)	17(17.0)	2.71
Number-related flashcards	19(19)	45(45.0)	16(16.0)	20(20.0)	2.63
Number-related games	6(6.0)	44(44.0)	17(17.0)	33(33.0)	2.23
Mathematics charts	16(16.0)	38(38.0)	16(16.0)	30(30.0)	2.44
<b>TOTAL</b>	14(13.58)	30(30.08)	16(16.08)	40(40.30)	2.17

Source: Field Survey, 2015

The result of Table 4.3 shows that the majority (40.0%) of the respondents reported that story books were never used in the kindergarten schools in the district. Also, the majority (57.0%) of the respondents indicated that the kindergarten schools in the district never use language related games. Other learning materials reported by the majority of the studied teachers to have never been used by the kindergarten schools were puzzles (62%), magazines (51%), newspapers (55%), and picture

encyclopedia (59%). Phonic charts (34%), whole word flashcards (38%), single and double letter flashcards (54%), number-related flashcards (45%), number related games (44%) and mathematical charts (38%) are however reported by greater percentage of the surveyed teachers to be sometimes used in teaching pupils of the kindergarten schools in the Atwima Nwabiagya District.

In summary, the total percentages for each likert scale are; often used (13.08%), sometimes used (30.08%), rarely used (16.08%) and never used (40.30%) as indicated by the Kindergarten schools in the Atwima Nwabiagya District. Therefore, with a percentage of 40.30% it can be established that kindergarten teachers never use curriculum materials.

#### **4.4 Reasons for using learning materials**

This section of the study identifies the reasons for using learning materials in teaching pupils in the various kindergarten schools in the Atwima Nwabiagya District. To achieve this objective, the respondents were presented with 7 possible reasons for using learning materials identified in literature to indicate their level of agreement on a 5 – point likert scale; 1= Strongly Disagree to 5= Strongly Agree. The responses are shown in Table 4.4 and Figure 4.3.

**Table 4.4: Reasons for the usage of Learning Materials**

Reasons	SD	D	N	A	SA	Mean
	(1)	(2)	(3)	(4)	(5)	
	F (%)	F (%)	F (%)	F (%)	F (%)	
Access prior knowledge	0(0.0)	4(4.0)	7(7.0)	57(57.0)	32(32.0)	4.17
Introduce new knowledge	0(0.0)	2(2.0)	12(12.0)	64(64.0)	22(22.0)	4.06
Activate learners response	0(0.0)	0(0.0)	18(18.0)	61(61.0)	21(21.0)	4.03
Bridge prior and new knowledge	2(2.0)	2(2.0)	21(21.0)	45(45.0)	30(30.0)	4.00
Encourage discovery learning	0(0.0)	9(9.0)	11(11.0)	59(59.0)	21(21.0)	4.00
Consolidate new knowledge	2(2.0)	5(5.0)	20(20.0)	55(55.0)	18(18.0)	4.00
Keep learners busy	9(9.0)	5(5.0)	16(16.0)	39(39.0)	31(31.0)	4.00
<b>TOTAL</b>	<b>2(1.85)</b>	<b>4(3.86)</b>	<b>15(15.00)</b>	<b>54(54.29)</b>	<b>25(25.00)</b>	<b>4.00</b>

Source: Field Survey, 2015

The result of the Table 4.4 shows that the highest ranked reason for teacher's usage of learning materials at the Kindergarten level in the Atwima Nwabiagya District is to access prior knowledge as this has the highest mean agreement level of 4.17. The majority of the respondents therefore agreed that accessing prior knowledge is a crucial reason for the usage of learning materials. The introduction of new knowledge is also perceived as critical factor for the usage of learning materials as the

mean response of 4.06 implies that is the second ranked reason. Notwithstanding, means for other reasons for the usage of learning materials at the Kindergarten level by the teachers in the district include activating learners response 4.03, bridging prior and new knowledge 4.00, encouraging discovery learning 4.00, consolidating new knowledge 4.00 and keeping learners busy 4.00.

In summary, the percentage responses for strongly disagree and disagree are 1.85% and 3.86% respectively and this sum up to 5.71% whiles agree and strongly agree are 54.29% and 25% respectively which also sum up to 79.29%. Thus with a total mean score of 4.0, it can be concluded that kindergarten teachers consider the usage of instructional materials as very crucial in teaching kindergarten pupils.

### **Research Question 3. What are the Availability and Accessibility Challenges of Curriculum Materials in Kindergarten Schools in the District?**

#### **4.5 Challenges of Availability and Accessibility of Curriculum Materials**

This section of the study identifies the challenges to the accessibility, availability and distribution of curriculum materials to the kindergarten schools in the Atwima Nwabiagya District. Respondents were presented with a list of 9 constraints usually reported in the literature as hindering efficient accessibility and distribution of learning materials. The task of each respondent was to indicate their level of agreement to the factors as a challenge in the availability, accessibility and distribution of curriculum materials in the study district from likert scale; 1= Strongly Disagree to 5= Strongly Agree [5]. The result of this section is displayed descriptively using both tabular method and graphical representation in Table 4.5 and Figure 4.3 respectively.

**Table 4.5: Challenges of Curriculum Materials availability and Accessibility**

Challenges	SD	D	N	A	SA	Mean
	(1)	(2)	(3)	(4)	(5)	
	F (%)	F (%)	F (%)	F (%)	F (%)	
The workbooks are not distributed yearly	8(8.0)	6(6.0)	7(7.0)	29(29.0)	50(50.0)	4.07
Limited availability of instructional materials	4(4.0)	5(5.0)	12(12.0)	30(30.0)	49(49.0)	4.15
Delay in supply	3(3.0)	1(1.0)	12(12.0)	42(42.0)	42(42.0)	4.19
Limited resources to acquire learning materials	4(4.0)	5(5.0)	12(12.0)	30(30.0)	49(49.0)	4.00
Improper selection of films	6(6.0)	1(1.0)	21(21.0)	38(38.0)	34(34.0)	4.00
Materials easily destroyed by pupils	4(4.0)	3(3.0)	27(27.0)	29(29.0)	37(37.0)	4.00
Lack of facilities for training teachers	10(10.0)	3(3.0)	13(13.0)	40(40.0)	34(34.0)	4.00
There are also inadequate storage facilities	4(4.0)	4(4.0)	19(19.0)	42(42.0)	31(31.0)	4.00
Pupils' workbook and teaching guide are sometimes not supplied	4(4.0)	7(7.0)	18(18.0)	36(36.0)	35(35.0)	4.00
<b>TOTAL</b>	5(5.22)	4(3.90)	16(15.70)	35(35.11)	40(40.11)	4.49

Source: Field Survey, 2015

The result of the Table 4.5 shows that the highest ranked challenge by the respondents is delay in supply of instructional materials with mean of 4.19 and this is followed by limited availability of instructional materials with a mean of 4.15.

Teachers perceived the workbooks are not distributed yearly with a mean of 4.07, Limited resources to acquire learning materials with a mean of 4.00, improper selection of films with a mean of 4.00, materials easily destroyed by pupils with a mean of 4.00, lack of facilities for training teachers with a mean of 4.00, inadequate storage facilities with a mean of 4.00, pupils' workbook and teaching guide are sometimes not supplied with a mean of 4.00, as accessibility and distributional challenges to curriculum materials usage at the various Kindergarten Schools in the Atwima Nwabiagya district. This therefore explains the unavailability and insufficiency of teaching and learning materials for the kindergarten schools in the Atwima Nwabiagya District.

In summary, the percentages for the likert scales strongly disagree and disagree are 5.22% and 3.90% which sum up to 9.12% while that of agree and strongly agree are 35.11% and 40.11% which also sum up to 75.22%. Hence, with a total mean score of 4.49, the teachers agreed that the kindergarten schools in the Atwima Nwabiagya District have challenges with availability and accessibility of curriculum materials.

#### **Research Question 4. What are the Challenges Confronting Teachers' Usage of Curriculum Materials in Kindergarten Schools?**

##### **4.5.1 Competency challenges of the curriculum materials**

The challenges of teachers with regard to their competency in the usage of curriculum materials are identified and ranked in this section of the study. To achieve this objective, respondents were presented with a list of 8 constraints usually reported in the literature as teacher competency constraint hindering the usage of curriculum materials in teaching at kindergarten schools.

Respondents were asked to indicate their level of agreement to the listed factors on a 5-point likert scale; 1= Strongly Disagree to 5= Strongly Agree. Table 4.6 and Figure 4.4 present the responses.

**Table 4.6: Competency challenges of the curriculum materials**

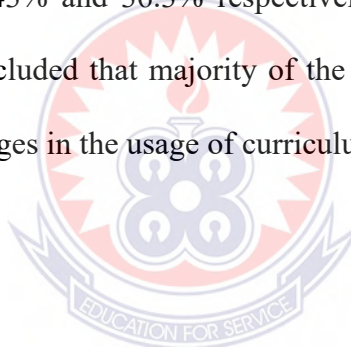
Competencies of teachers	SD (1) F (%)	D (2) F (%)	N (3) F (%)	A (4) F (%)	SA (5) F (%)	Mean
I am capable of using activity sheets in teaching	11(11.0)	1(1.0)	16(16.0)	42(42.0)	30(30.0)	4.00
I am good at using construction toys in teaching	8(8.0)	0(0.0)	10(10.0)	43(43.0)	39(39.0)	4.00
I am able to use whole word flashcards to teach	4(4.0)	6(6.0)	10(10.0)	47(47.0)	33(33.0)	4.00
I am good at using plastic cubes in teaching	2(2.0)	4(4.0)	15(15.0)	44(44.0)	35(35.0)	4.06
I am generally good at using visual objects in teaching	6(6.0)	6(6.0)	7(7.0)	49(49.0)	32(32.0)	4.05
I am capable of using phonic charts in teaching	2(2.0)	9(9.0)	6(6.0)	42(42.0)	41(41.0)	4.11
I am capable of using blocks in teaching	4(4.0)	6(6.0)	12(12.0)	34(34.0)	44(44.0)	4.08
<b>TOTAL</b>	5(5.30)	5(4.60)	11(10.90)	43(43.00)	36(36.30)	4.61

Source: Field Survey, 2015

The result of Table 4.6 shows that the surveyed Kindergarten teachers of the Atwima Nwabiagya District had no challenges with using activity sheets in teaching

pupils as shown by the mean response of 4.00. the surveyed teachers were found to be capable of using construction toys and whole word flashcards in teaching the pupils at the Kindergarten level as majority agreed to their capability in that respect. The Table (4.6) further shows that the teachers perceived themselves to have higher level of competency in teaching pupils at the Kindergarten level using plastic cubes, visual objects, phonic charts and blocks. Therefore, the teachers perceive themselves to have limited challenges in handling or using the assessed teaching materials in teaching Kindergarten pupils.

In summary, the percentages for the likert scales strongly disagree and disagree are 5.3% and 4.6% respectively which sum up to 9.9% while that of agree and strongly agree are 43% and 36.3% respectively which also sum up to 79.3%. Therefore, it can be concluded that majority of the respondents were not confronted with competency challenges in the usage of curriculum materials in teaching.





## CHAPTER FIVE

### DISCUSSION OF RESULTS

#### 5.0 Introduction

This chapter evaluates and interprets the implications of the presentations made, especially with respect to the research questions. It also identifies the similarities and differences between the results and the work of others to clarify and confirm the conclusions. The discussion includes a description of how the findings relate to the literature.

#### 5.1 Research Question 1: What is The Nature of Instructional Materials for Kindergartens in the District?

It was found that majority of the instructional materials were not available; the few which were available were insufficient, manufactured and poorly conditioned. This finding is consistent with that of Kelly (1991) who observed in a study conducted in Zambia that the supply of teaching materials in schools is in a critical state. According to him, most of the schools that have textbooks do not have enough of them while some have none of the necessary textbooks. The reason for this finding could be that the instructional materials are not supplied regularly by the educational stakeholders and there are inadequate storage facilities to keep the few available ones. For instance, Nasser and Mohammed (1998) in a research conducted in Zanzibar pointed out that lack of cupboards, books, shelves or any form of storage facility makes teaching and learning difficult. This was due to the fact that learning materials got lost easily or were in bad condition. This finding is also consistent with the finding of Duah (2014) that, electrically powered instructional materials such as computers, LCD projectors and video recordings were limited in supply in Colleges

of Education in Ghana. The research of Duah focused on colleges of education while this current study is based in kindergarten schools.

Moreover, according to Narayan (1980), the first few years of a child's life are the most impressionable years and the learning experiences provided during these years in or outside schools and other institutional arrangements have a predominant influence on the future behaviour pattern of the child. However, the current study reveals unavailability or otherwise insufficiency of teaching and learning materials such as toys, card-games, puzzles as well as audio-visual aids such as pictures, charts, maps, diagrams, flannel graphs and sound-recordings which are basically materials of sight and sound. These materials offer a variety of experiences which stimulate the senses and promote self-activity in children among the kindergarten schools of Atwima Nwabiagya District.

## **5.2 Research Question 2: How often do the Kindergarten Teachers use Curriculum Materials in Teaching and Learning?**

Majority of the respondents indicated that they have never used instructional materials in teaching their pupils due to their unavailability. This finding is consistent with Asogwa and Egbo (2013) in a study conducted in Benue State Nigeria which revealed that out of all the instructional materials recommended by the NERDC (2009) for teaching fish production to students, 8 out of 22 were available and were often utilized by teachers in senior secondary schools. Although their sample focused on teachers in senior high schools, it gives a clear picture that teachers only use those materials available. If there are none, they might never use them, hence this finding. The reason for this finding is in line with Opoku-Asare (2004) in a study conducted in Kumasi Metropolis who found that primary school teachers only use blackboard, flash

cards, real objects, charts and ruler regularly as teaching materials in all the schools due to their availability.

### **5.3 Research Question 3. What are the Availability and Accessibility Challenges of Curriculum Materials in Kindergarten Schools in the District?**

The results indicated that kindergarten schools in Atwima Nwabiagya District have challenges with availability and accessibility of curriculum materials. This finding is in line with the study of Aggarwal (1995) that reported several challenges of distribution and availability of curriculum materials. When provided, they were neither regular nor adequate. This finding is consistent with the finding of Likoko, Mutoso and Nasongo (2013) that institutions were faced with challenges such as lack of adequate facilities like libraries and instructional materials. It should be established that their finding was based in Teacher Training Colleges while this finding is based in Kindergarten Schools in Atwima Nwabiagya District in the Ashanti Region of Ghana. Therefore, it can be concluded that challenges with curriculum materials cut across all levels of education.

The reason for this finding can be linked to the fact that the few materials available may be kept in the headteacher's office to regulate their usage. Thus, teachers may not get regular access to them. For example, Olawale (2013) asserts in his study that there should be no excuse that materials are readily available but locked up in the store because the store-keeper is nowhere to be found or the keys to the store have been misplaced.

#### **5.4 Research Question 4. What are the Challenges Confronting Teachers' Usage of Curriculum Materials in Kindergarten Schools?**

It was found that respondents do not have problems with the usage of instructional materials whether professional or non-professional. Teacher qualifications, experience and skills, are important variables in determining classroom quality and the chances of children's school success. This finding is in consonance with that of Seplocha and Strasser (2008) who found that kindergarten teachers who held a Preschool through Grade 3 (P-3) endorsement had, on average, higher scoring classrooms on all measures than the classrooms of teachers who held standard elementary school endorsements. The higher scoring was due to their prior preschool teaching experience. For example, Seel and Winn (1997), as cited in Sarfo and Adentwi (2011), acknowledged that individuals learn through both immediate and mediated experience. Immediate experience is gained through direct communication with the expert, and mediated experience is gained through media. As such, kindergarten teachers do not have any challenge with the usage of curriculum materials due to the experience gained through interaction between professional and non-professional teachers and the working environment.

## CHAPTER SIX

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

#### 6.0 Introduction

This chapter summarises key findings and draws conclusions from the findings, it then recommends to be taken in order to improve the accessibility, availability and usage of instructional materials.

#### 6.1 Summary

The study was conducted to investigate the nature, access and use of instructional materials in kindergartens in the Atwima Nwabiagya District in the Ashanti Region using a descriptive design to collate data on a sample of 160 kindergarten teachers through a structured questionnaire.

The objectives of the study were to identify the nature of instructional materials that are available, adequate and accessible in kindergartens in the district; determine the extent of use of instructional materials by the kindergarten teachers in the district; find out the challenges confronting the availability and accessibility of instructional materials in kindergarten schools in the district; and to investigate into the problems militating against the teachers' usage of instructional materials in the district.

### **6.1.1 Main findings**

The study revealed that most of the essential instructional materials was not available; the few which were available were insufficient, were manufactured locally and were in poor condition. Furthermore, the study showed that majority of the respondents had never used instructional materials in teaching their pupils due to their unavailability. The results also show that kindergarten schools in Atwima Nwabiagya District had challenges with availability and accessibility of curriculum materials. It was found that respondents whether professional or non-professional did not have problems using instructional materials.

### **6.2 Conclusion**

The study investigated the nature, access and use of instructional materials in kindergarten schools. Evidently the Atwima Nwabiagya District in the Ashanti Region lack several important curriculum materials for teaching Kindergarten pupils. Teachers are denied the use of kindergarten instructional materials because of their unavailability. Therefore the following conclusions were drawn from the findings:

1. Kindergarten teachers sometimes feel reluctant to improvise instructional materials and store them for effective use;
2. Few materials available may be kept at the headteacher's office to regulate their usage;
3. Some of the instructional materials cannot be afforded by the school.

### 6.3 Recommendations

Based on the summarized findings of the study deduced from the major objectives, several imperative recommendations are suggested to the major stakeholders in the educational sector including the head teachers, Parent Teacher Association (PTA), the School Management Committee (SMC), the educational directorate, and the ministry of education.

1. The Kindergarten teachers should improvise some of the instructional materials locally. The teachers can also improvise through the self-manufacturing of instructional materials that could aid in teaching in the absence of already made instructional materials.
2. The school authorities should provide and make accessible to teachers those instructional materials that are lacking in the school. School authorities such as the Parent Teacher Association, School Management Committee, and the headteachers can collaborate to make available and accessible instructional materials. Where instructional materials have to be stored to prevent pupils from destroying them, it is advised that the headteachers should give them out when needed and collect them back for safekeeping.
3. The Ministry of Education should provide instructional materials, especially those that cannot be afforded by the school. The ministry needs to provide workbooks to the Kindergarten schools in the district annually since the books cannot be used again by other pupils.

4. The Ministry of Education should supply the required instructional materials to the Kindergarten schools in the district on time.

5. Materials for the training of teachers in the usage and improvising of instructional materials should be made available to the district education directorate by the Ministry of Education. These materials can be used to organize workshops for teachers at the Kindergarten schools.

6. The Ministry of Education should provide kindergarten schools with adequate storage facilities to store the available instructional materials to prevent the instructional materials from getting lost, torn and damaged.

#### **6.4 Suggestions for Further Study**

1. The study focused its attention on the nature, access and use of instructional materials in kindergarten schools in the Atwima Nwabiagya District of the Ashanti Region, therefore further study should be conducted in the remaining districts of the Ashanti Region.

2. Further study should also be conducted in the private kindergarten schools in the Atwima Nwabiagya District of the Ashanti Region on the nature, access and use of instructional materials for comparative analysis.



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**APPENDIX A**

**UNIVERSITY OF EDUCATION, WINNEBA**

**DEPARTMENT OF EDUCATIONAL LEADERSHIP**

**QUESTIONNAIRE FOR HEADTEACHERS AND KG TEACHERS**

This study investigates: *“The Nature, Access and Use of Curriculum/instructional Materials in Kindergarten Schools in the Atwima Nwabiagya District.”* This study is for academic purposes only and you are assured that your responses will be kept strictly confidential. Therefore, you are encouraged to provide detailed responses as possible.

**Please tick (✓) or write where appropriate.**

**SECTION A: DEMOGRAPHIC CHARACTERISTICS**

1. Status: a) Headteacher [ ] b) KG Teacher [ ]

2. Gender: a) Male [ ] b) Female [ ]

3. Age (in years): a) Below 30 [ ] b) 30-39 [ ] c) 40-49 [ ] d) 50 or more [ ]

4. Highest educational qualification: a) MSLC [ ] b) BECE [ ] c) SSSCE/WASCE [ ]  
d) Diploma [ ]

e) Bachelor Degree [ ] f) Post-Graduate Diploma [ ] g) Master’s Degree [ ]

Others (specify).....

5. Professional status: a) Professional Teacher [ ] b) Non-Professional Teacher [ ]

6. Years of experience as a KG teacher (for KG teachers only): a) Less than 1 [ ] b) 1–5 [ ] c) 6–10 [ ] d) 11– 15 [ ] e) 16 – 20 [ ] f) 21 or more [ ]

**SECTION B: NATURE OF KG CURRICULUM MATERIALS**

7. Please provide the necessary information about the availability, sufficiency, source and condition of the underlisted learning materials by ticking the appropriate options provided.

Learning materials		Available	Sufficient in number	insufficient in number	Home made	Manufactured	Good condition	Poor condition
Story books	Yes							
	No							
Language related games	Yes							
	No							
Puzzles	Yes							
	No							
Magazines	Yes							
	No							
Picture encyclopaedia	Yes							
	No							
Phonic charts	Yes							
	No							



Mathematics charts	Yes							
	No							
Whole word flashcards	Yes							
	No							
Single and double letter flashcards	Yes							
	No							
Number-related flashcards	Yes							
	No							
Bottle tops	Yes							
	No							
Containers	Yes							
	No							
Bottle cock	Yes							
	No							
Construction toys	Yes							

	No							
Paint	Yes							
	No							
Paint brushes	Yes							
	No							

**SECTION C: EXTENT OF USE OF CURRICULUM MATERIALS**

8. Do you use the curriculum materials in your teaching and learning materials?

a) Yes [ ] b) No [ ]

9. Please indicate the extent of usage of the underlisted learning materials in the classroom among kindergarten teachers by choosing from a scale of 1 to 4. (Where 1=never, 2=rarely, 3=sometimes, and 4=often used)

Learning materials	Often used	Sometimes	Rarely	Never
Story books				
Language related games				
Puzzles				
Non-fiction books that give learners information				
Magazines				

Newspapers				
Picture encyclopaedia				
Phonic charts				
Whole word flashcards				
Single and double letter flashcards				
Number-related flashcards				
Number-related games				
Mathematics charts				

10. Please, indicate your level of agreement to the underlisted factors as major reasons for using learning materials by choosing from a scale of 1 (strongly disagree) to 5 (strongly agree). (1-strongly disagree, 2-disagree, 3-neutral, 4-agree and 5-strongly agree)

	5	4	3	2	1
Access prior knowledge					
Introduce new knowledge					
Activate learners response					
Bridge prior and new knowledge					
Encourage discovery learning					

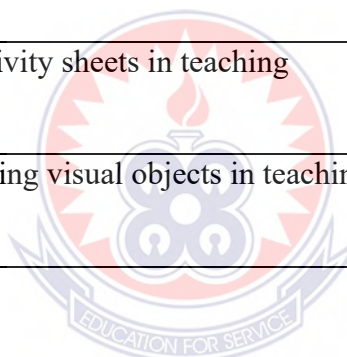
Consolidate new knowledge					
Keep learners busy					

#### **SECTION D: CHALLENGES OF DISTRIBUTION, AVAILABILITY AND ACCESSIBILITY OF CURRICULUM MATERIALS**

11. Please, indicate your level of agreement to the underlisted as problems militating against the distribution, availability and teachers' accessibility and use of kindergarten learning materials by choosing from a scale of 1 (strongly disagree) to 5 (strongly agree). (1-strongly disagree, 2-disagree, 3-neutral, 4-agree and 5-strongly agree)

	5	4	3	2	1
<b>Distributional and availability factors</b>					
Delay in supply					
The workbooks are not distributed yearly					
Limited availability of instructional materials					
Limited resources to acquire learning materials					
Materials easily destroyed by pupils					
There are also inadequate storage facilities					
Improper selection of films					
Lack of facilities for training teachers					
Pupils' workbook and teaching guide are sometimes not supplied					

<b>Competencies of teachers</b>					
I am capable of using phonic charts in teaching					
I am able to use whole and flashcards to teach					
I am capable of using blocks in teaching					
I am good at using plastic cubes in teaching					
I am capable of using unifixes in teaching					
I am good at using construction toys in teaching					
I am capable of using activity sheets in teaching					
I am generally good at using visual objects in teaching					



**APPENDIX B****RELIABILITY TEST OF THE QUESTIONNAIRE**

**Q10 (the extent to which certain agents provides learning materials to the kindergarten teachers)**

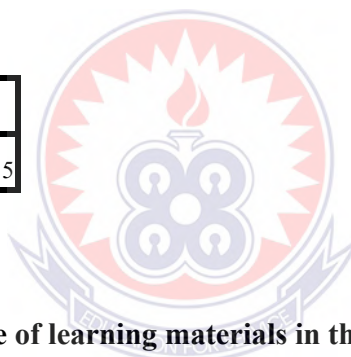
**Case Processing Summary**

		N	%
Cases	Valid	10	100.0
	Excluded <sup>a</sup>	0	.0
	Total	10	100.0

a. Listwise deletion based on all variables in the procedure.

**Reliability Statistics**

Cronbach's Alpha <sup>a</sup>	N of Items
.790	5



**Q17. (The extent of usage of learning materials in the classroom among kindergarten teachers)**

**Case Processing Summary**

		N	%
Cases	Valid	10	100.0
	Excluded <sup>a</sup>	0	.0
	Total	10	100.0

a. Listwise deletion based on all variables in the procedure.

**Reliability Statistics**

Cronbach's Alpha	N of Items
.737	13

**Q18 (factors as major reasons for using learning materials)****Case Processing Summary**

		N	%
Cases	Valid	10	100.0
	Excluded <sup>a</sup>	0	.0
	Total	10	100.0

a. Listwise deletion based on all variables in the procedure.

**Reliability Statistics**

Cronbach's Alpha	N of Items
.853	7



## CHALLENGES OF DISTRIBUTION, AVAILABILITY AND ACCESIBILITY OF CURRICULUM MATERIALS

**Distributional and availability factors****Case Processing Summary**

		N	%
Cases	Valid	10	100.0
	Excluded <sup>a</sup>	0	.0
	Total	10	100.0

a. Listwise deletion based on all variables in the procedure.

**Reliability Statistics**

Cronbach's Alpha	N of Items
.650	9

**Competencies of teachers**

**Case Processing Summary**

		N	%
Cases	Valid	10	100.0
	Excluded <sup>a</sup>	0	.0
	Total	10	100.0

a. Listwise deletion based on all variables in the procedure.

**Reliability Statistics**

Cronbach's Alpha	N of Items
.859	8



**Overall Reliability of the Data**

**Case Processing Summary**

		N	%
Cases	Valid	10	100.0
	Excluded <sup>a</sup>	0	.0
	Total	10	100.0

a. Listwise deletion based on all variables in the procedure.

**Reliability Statistics**

Cronbach's Alpha	N of Items
.846	42