ASSESSMENT OF THE AVAILABILITY AND UTILIZATION OF ELECTRONIC MEDIA IN TEACHING SOCIAL STUDIES IN COLLEGES OF EDUCATION IN NIGERIA

BY

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DECLARATION

I hereby declare that this work titled Assessment of the Availability, and Utilization of Electronic Media in Teaching Social Studies at Colleges of Education in North West Geo-Political Zone of Nigeria is the product of my own research efforts, undertaken under the supervision of Dr. A. Guga, Dr. H.O. Yusuf and Dr. S.U El-Yakub and has not been presented elsewhere for the award of a degree or certificate. All sources are duly acknowledged.

_____ _____

Aliyu Garba ABUBAKAR Date

CERTIFICATION

This dissertation titled "Assessment of the Availability and Utilization of Electronic Media in Teaching Social Studies at Colleges of Education in North West Geo-Political Zone of Nigeria" by Aliyu Garba ABUBAKAR meets the requirements governing the award of the degree of Doctor of Philosophy (Curriculum and Instruction) in the Department of Educational Foundations and Curriculum, Ahmadu Bello University, Zaria.

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DEDICATION

This dissertation is dedicated to the entire family of Late Abubakar Garba Abdullahi, (Malam Garbu) and in memory of my late brother, Alh. Umaru Garba. It is also dedicated to my Mother, Hajiya Rabi'atu, Wife, Hajiya Amina and Children Sadiya, UmmuSalma, Amina, Aisha, Muhammad and UmmuKhulsum.

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ABSTRACT

The research was conducted to assess the availability and utilization of electronic media in teaching Social Studies in colleges of education in Nigeria. The objectives were to determine availability, assess lecturers and students awareness to available resources in the colleges, assess the utilization of electronic media by lecturers and students in the colleges; identify the factors that influence lecturers use of the resources and to assess the constraining factors in the use of electronic media by lecturers. The research adopted survey design. Five research questions were developed and answered. Five hypotheses were also drawn and tested at 0.05 level of significance. Five thousand two hundred and eighty-two (5,282) lecturers and students from nine (9) colleges of education in the Northwest Geo-Political Zone of Nigeria formed the population of the study. Sampled population for the study consisted of one thousand nine hundred and fourty one lecturers and students, (1,941), through purposeful sampling. Questionnaire was developed and administered to the two categories of respondents: lecturers and students. Data collected from the questionnaire were subjected to statistical analysis using Mann Whitney U-test and chi-square. The research findings showed that most of the required electronic media (59%) for teaching and learning Social Studies were not available in the colleges; the available electronic media in the colleges were not adequately utilized for the teaching and learning of the subject. Based on the research findings, it was concluded that the required electronic media for the effective teaching and learning of Social Studies in the colleges were not adequate; only a few of the supposed media were available. Sequel to the findings, the study recommended among others that, government, management, lecturers, students of colleges of education should as a matter of urgent importance provide necessary electronic media devices for the teaching and learning of Social Studies in the institutions.

TABLE OF CONTENTS

TITLE PAGE		I
DECLARATION		II
CERTIFICATION		III
DEDICATION		IV
ACKNOWLEDGEMENT		V
ABSTRACT		VI
TABLE OF CONTENTS		VII
LIST OF FIGURES		IX
LIST OF TABLES		X
LIST OF APPENDICES		XII
ABBREVIATIONS		XIII
CHAPTER ONE: INTRODUCTION		
1.1	Background to the Study	1
1.2	Statement of the Problem	4
1.3	Objectives of the Study	5
1.4	Research Questions	6
1.5	Hypotheses	6
1.6	Basic Assumptions	7
1.7	Significance of the Study	7
1.8	Scope of the Study	8
CHAPTER TWO: REVIEW OF RELATED LITERATURE		
2.1	Introduction	10
2.2	Theoretical Framework	10
2.2.1	The Constructivist Learning Model	14
2.2.2	The Advantages of the Constructivist Model at the College Level	19
2.3	Concept of Electronic Media	21
2.3.1	Historical Background of Electronic Media in Teaching	23
2.3.2	Information and Communication Technology Policies and the Nigerian Education System	30
2.3.3	Types of Electronic Media	33
2.4	Utilization of Electronic Media	35
2.4.1	Teachers' Electronic Media Usage	42
2.4.2	Role of Electronic Media in Teaching and Learning	44
2.4.3	Impact of Electronic Media on Learning Process	47
2.4.4	Strategies for ICT Integration in the Nigerian Schools	49
2.5	Electronic Media in Teaching Social Studies	53

2.6 Sources and Usage of Electronic Resources 60
2.7 How to Use Electronic Resources 62
2.8 Constrains to the Use of Electronic Media in Teaching and Learning Social Studies 64
2.9 Empirical Studies 66
2.10 Summary 77

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction 79
3.2 Research Design 79
3.3 Population 79
3.4 Sample and Sampling Technique 81
3.5 Instrumentation 82
3.5.1 Validity of the Instruments 82
3.5.2 Pilot Study 82
3.5.3 Reliability of Instrument 83
3.6 Procedure for Data Collection 83
3.7 Procedure for Data Analysis 83

CHAPTER FOUR: RESULTS AND DISCUSSIONS

4.1 Introduction 85
4.2 Descriptive of Study Variables 85
4.3 Response to Research Questions 86
4.4 Test of Hypotheses 99
4.5 Summary of Major Findings 105
4.6 Discussion of Findings 105

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction 112
5.2 Summary 112
5.3 Conclusion 114
5.4 Implications of findings 115
5.5 Recommendations 116
5.6 Suggestions for Further Studies 116
5.7 Limitations of the Study 117
References 118
Appendices 131

LIST OF FIGURES

Figure 2.1 Mayer's Cognitive Theory of Multi Media Learning 13

LIST OF TABLES

Table 2.1: Traditional Versus Resource Based Learning 15

Table 3.1: Colleges of Education Offering Social Studies in the Study Area 80

Table 3.2: Sampled Colleges of Education 81

Table 4.1: Status of Respondents 85

Table 4.2: Classification of Staff by Educational Qualifications 86

Table 4.3: Type of Institution of Lecturers 86

Table 4.4: Opinions of the Respondents on the Available Electronic Media for the Teaching and Learning of Social Studies in the Colleges 88

Table 4.5: Opinions of the Respondents on the Extent of Utilization of Available Electronic Media for the Teaching and Learning of Social Studies in the Colleges 90

Table 4.6: Opinions of the Lecturers on Factors Responsible for their Usage of the Available Electronic Media in Classroom Pedagogy of Social Studies in the Colleges 92

Table 4.7: Opinions of the Lecturers on Constraints to the Effective Utilization of Electronic Media for the Teaching and Learning of Social Studies in the Colleges 94

Table 4.8: Respondents' Awareness on the Availability of Electronic Media for the Teaching and Learning of Social Studies in the Colleges 96

Table 4.9: Mann Whitney U test Summary on the Opinion of Lecturers in State Colleges of Education and Federal Colleges of Education on Types of Electronic Media Resources available for Teaching Social Studies in the Colleges 100

Table 4.10: Mann Whitney summary on awareness of available electronic media for teaching and learning of social studies by status of respondents 101

Table 4.11: Mann Whitney U test Summary on Utilization of Available Electronic Media by Lecturers and Students in the Colleges of Education 102

Table 4.12: Mann Whitney summary on Motivation in the Utilization of Electronic Media for the Teaching and Learning of Social Studies among lecturers in the Colleges of Education 103

Table 4.13: Chi-square Summary on Constraints to the Effective Utilization of Electronic media for the Teaching and Learning of Social Studies in Colleges 104

LIST OF APPENDICES

Appendix I: Introductory Letter 131

Appendix II: Electronic Media Awareness for Lecturers, (EMAL) 133

Appendix III: Electronic Media Awareness for Students (EMAS) 138

Appendix IV: Instructional Manual for research assistants 141

Appendix VA: Result of the Reliability Test for the Lecturers' Questionnaire 142

Appendix VB: Result of the Reliability Test for the Students' Questionnaire 143

Appendix V C: Colleges of Education in North Western Nigeria 144

Appendix VI: Table for Determining Sample Size 145

Appendix VII: Colleges of Education in North-west Geo-political zone of Nigeria 146

ABBREVIATIONS

CAI: Computer Assisted Instruction

CD-ROM: Compact Disc Read-Only Memory

CTML: Cognitive Theory of Multimedia Learning

EFA: Education For All

EMAL: Electronic Media Availability Lecturers

EMAS: Electronic Media Availability Students

FCE: Federal College of Education

FME: Federal Ministry of Education

ICT: Information and Communications Technology

MDGS: Millennium Development Goals

NCCE: National Commission for Colleges Of Education

NCE: Nigerian Certificate in Education

NERDC: Nigerian Educational Research Development Council

SOSAN: Social Studies Association of Nigeria

SOSTAN: Social Studies Teachers Association of Nigeria

UNDP: United Nations Development Programme

UNESCO: United Nations Educational Scientific and Cultural Organization

CHAPTER ONE
INTRODUCTION

1.1: Background to the Study

Throughout the world, many nations have introduced various electronic media devices into schools through different courses of action. The use of electronic media facilities has become a necessity for improving quality in teaching and learning. This has been approved in Nigeria by the Federal Ministry of Education (FRN, 2010), when it emphasised that, electronic media is of paramount importance to the future of education in the country. The successful implementation of electronic media in teaching will immensely contribute to meeting the Millennium Development Goals (MDGs) and Education for All, (EFA) goals, both of which Nigeria is a signatory at various international forums. The importance of electronic media in classroom instructions is also attested to by the United Nations Education, Scientific and Cultural Organizations, (UNESCO), at the Grunwald Declaration on Media, 1982 in Germany. The declaration stated that, 'an increasing number of people spend time watching television, playing records, and listening to the radio'. As such bringing such to bear and form part of instruction will be equally accepted by all. To achieve Education for All (EFA), the Dakar 1990 Declaration called for among other goals, 'improved teaching and learning facilities, quality education for all learners, and not only the 'best education for the best few'.

Similarly, Hepburn (1998), views electronic media as media that use electronics or electromechanical energy for the end-user to access the content. In a more subtle way, electronic media are diverse set of electronic technologies and technological tools and resources used to communicate, create, discriminate, store and manage information. These technologies may include materials such as, computers, the internet, broadcasting technologies and telephony.

Many scholars and organizations have written on the impact of utilising electronic media in the teaching and learning process. These authors include McLuhan (1964), Alaka

(1978), Kochhar (1986), Okafor (1988), Mkpa (1989), UNDP (1998), World Bank (1999), Heeks (1999), Aguokogbuo (2000), Koert (2000), and Nwanna-Nzewunwa (2003). More specifically, it was underlined in the works of these authors that the use of electronic media is affecting or changing behaviour of learners of every field, Social Studies inclusive. It was equally shown by some of the authors that these materials are important catalysts of social re-engineering and change. Dwyer (1990), in Umoh (2011), found out that, in learning environments supported by electronic media, teachers: expect more from students; can present more complex materials; believe students understand more complex concepts; can effectively meet the individual needs of students; are more willing to experiment; and feel more professional because they help pupils learn rather than dispense information.

In a related issue Guernsey (2010), found out that, using electronic media in teaching: stimulates the development of intellectual skills; contributes to the ways of acquiring knowledge, skills and attitudes; spurs "spontaneous interest" more than the traditional approaches; makes students using media in instruction concentrate more than students in traditional setting; gingers the spirit of research within students; and provides collaborative learning.

Electronic media devices can play a major role in ensuring quality as well as improving access and promoting equity in education, improving the quality of teaching and learning, and improving management and efficiency of education (Gulbahar and Guven, 2008:136). The interactivity in electronic media can enable a global out reach for sharing of knowledge, materials and data bases, quickly and cheaply over long geographic distances using online resource. Dewey's word in the previous century has linked this argument thus, "if we teach today as we taught yesterday, we rob our children of tomorrow" (Dewey, 1916). Chalk and talk had been applied in the teaching process centuries ago; today the emergence of electronic media should be used not only to supplement teaching, but to take over as the

medium of passing out information and the entire pedagogical issues, at least in a phase by phase process.

Nigerian Policy on Information and Communication Technology (NPICT), is geared towards ensuring the attainment of qualitative education for the enhancement of sustainable socio-economic development, global competitiveness and the individual's ability to survive in the contemporary environment. The hope, accordingly, of the implementation of the policy is that it will lead to speedy transformation of the teaching, learning and administration of education in Nigeria; thereby leading to the production of graduates of the education system that can survive in the contemporary society, sustain national development and can compete globally (FRN 2010). The objectives of National Policy on Information and Communication Technology in Education are to: facilitate the teaching and learning processes; promote problem-solving, critical thinking and innovative skills; promote life-long learning; enhance the various teaching/learning strategies required to meet the needs of the population; support effective and efficient education administration; enhance universal access to information; and widen access to education and the range of instructional options and opportunities from any-where, any-time, any-pace and any-path learning (FRN 2010:12).

From the above listed objectives it can be deduced that the use of electronic media in Teacher Education Program is gaining momentum and interest all over the globe. A new technology has therefore brought changes in education (Bates, 2005). The influence of electronic devices in form of media has permeated every aspect of human life and endeavor, (Olagunju, 2010). Mariana (2001), and Clint (2010), in Badmus (2011), all concurred to the fact that Media technology is challenging the boundaries of the educational structures that have traditionally facilitated and supported learning. Recent advances in development and implementation have indeed attested to the fact that there is improvement in innovative teaching strategies.

The impact of electronic media in the teaching and learning process as attested by Nigerian Government, International Agencies and Scholars, has prompted the need to find out what is available in terms of electronic media devices in the teacher training institutions and how what is available is being utilized in the process of teaching and learning in the North West Geo political Zone of Nigeria.

1.2: Statement of the Problem

In recent times the integration of information and communication technologies in teacher training programs has been the topic of much debate, because educational systems around the world are under increased pressure to use the new information and communication technologies to teach students' knowledge and skills they need in the 21st century. Teacher training institutions in Nigeria are faced with the challenges of preparing a new generation of teachers to effectively use the new learning tools in their teaching practices (UNESCO, 2002). Thus, teacher education program have been affected by the penetrating influence of information and communication technology. Electronic media knowledge, in concrete terms, has enhanced teaching and learning through its dynamic, interactive, and engaging content; and has provided real opportunities for individualized and mass instruction globally (Newhouse, 2002a).

However despite efforts by government to establish valuable and effective teacher education programs in Nigeria to help in the preparation of competent teachers, there is a fundamental problem which has incapacitated its development especially in use of electronic media in instruction. The changes that came through the use of media in Nigerian Schools are not as expected. As noted by Garuba (2003), the Nigerian teacher operates from a deficient environment where teaching and learning is seriously impoverished particularly in the rural set up. In addition, limited availability and poor utilization of instructional materials in the teaching of Social Studies in most Nigerian schools have been established as reported by Jotia and Matlale (2011).

Current obvious realities are, most teachers depend mostly on textbooks and chalkboards as instructional materials while other relevant instructional materials such as overhead projectors, televisions, multimedia computers, and related devices are sparingly used. Norris, Sullivan and Poirot (2003), pointed out that the importance of accessibility and teachers' use of technology for curricular purposes is almost exclusively a function of their access to that technology. The scenario above prompted the research in identifying the availability and utilization of electronic media in the colleges of education in the study area, and assess the extent to which what is available is qualitative and effectively applied in the classroom situation primarily, and by extension find out the level of utilization of the available media. Electronic media has been found to encourage active learning, support innovative teaching, reduce the isolation of teachers, and encourage teachers and students to become active researchers and learners.

1.3: Objectives of the Study

The objectives of this study were to:

1. determine the types of electronic media available in colleges of education in North-West Geo-political zone.
2. to ascertain lecturers' and students' awareness of the available electronic resources in the colleges of education in North West Geo-Political Zone of Nigeria.
3. assess the extent of utilization of electronic media by lecturers and students in the Colleges of Education in North-West Geo-political zone
4. identify the factors that influence lecturers' use of electronic media in the colleges of education in North-West Geo-political zone
5. identify the major constraints in the use of electronic media in classroom pedagogy in the colleges of education in North-West Geo-political zone.

1.4: Research questions

In order to carry out the research, the following research questions were formulated in line with the objectives of the study:

1. What are the types of electronic media resources available for teaching Social Studies in colleges of education in North-West Geo-political zone?
2. To what extent are lecturers and students aware of the electronic media available in the colleges of education in North West Geo-Political Zone of Nigeria?
3. To what extent do Social Studies lecturers and students effectively utilize electronic media in the teaching process in colleges of education in North-West Geo-political zone?
4. What factors influence Social Studies lecturers with graduate and post graduate qualification to use electronic media in colleges of education in North-West Geo-political zone?
5. What are the major constraints to effective utilization of electronic media in classroom pedagogy in colleges of education in North-West Geo-political zone?

1.5: Hypotheses

The following hypotheses were formulated to guide the research study:

Ho_1 There is no significant difference in the opinions of lecturers in federal colleges of education and state colleges of education on types of electronic media resources available for teaching Social Studies in the colleges of education in North-West Geo-political zone.

Ho_2 There is no significant difference in the awareness of lecturers and students on availability of electronic media in colleges of education in North-West Geo-political zone.

Ho_3 There is no significant difference in the opinions of lectures and students on the extent of the utilization of electronic media in colleges of education in North-West Geo-political zone.

Ho_4 There is no significant difference in the factors that influence the lectures with First Degree and Post Graduate Degree qualification usage of electronic media in colleges of education in North-West Geo-political zone

Ho_5 There is no significant difference in the opinion of lecturers in federal colleges of education and state colleges of education on constraints to the use of electronic media in colleges of education in North-West geo-political zone.

1.6: Basic Assumptions

This study was undertaken based on the following assumptions;

i. Electronic instructional media for instruction in Social Studies are available.
ii. Lecturers and students are aware of the available electronic media in colleges of education.
iii. Social Studies lecturers and students utilize the electronic media for instruction effectively.
iv. Lecturers were well motivated to apply electronic media in teaching
v. There were no constraints to effective sourcing of electronic media and its application in the teaching process.

1.7: Significance of the Study

The findings of the study could be of significance to the following bodies as stake holders; the Federal Ministry of Education (FME), the National Commission for Colleges of Education (NCCE), the National Educational Research Development Commission (NERDC), Teachers, Students, Parents and Administrators where teacher training occurs could find some of the results of the research useful, by understanding and appreciating the impact of electronic media application in teaching and learning process. This could lead to the

procurement of what are not available, constant update, maintenance and sustenance of the available electronic media in the colleges.

The findings from the study would equally impact favorably on teacher educators in colleges of education through enhancing their training by integrating electronic media-assisted strategies in teacher preparation programs. Lecturers would be encouraged by the study to identify suitable areas that need application of media and may detect their deficiencies and strengths in order to enhance the training of the teachers in their various institutions. As planners of the various learning processes, they can identify most suitable media to apply in the classroom for maximum benefit to students.

Students would also be motivated by the presence of electronic media in their classes to enhance their understanding of the lessons. Students in colleges of education also stand to benefit from the findings of the study by being encouraged to learn through available sources of electronic media devices they too can use in classroom/lesson delivery. They could also learn to utilize and maintain them for effectiveness.

Bodies such as Social Studies Association of Nigeria (SOSAN), Social Studies Teachers Association of Nigeria (SOSTAN), Social Studies and Civic Educators of Nigeria (SOSCEAN), could benefit from the outcome of the study through sensitizing members on the impact and usefulness of electronic media in classroom instruction and can also as a group pressurize the authorities in ensuring their availability. Equally, Nigerian Educational and Research Development Council (NERDC), National Commission for Colleges of Education (NCCE), and States Educational Resource Centers could benefit by considering the findings of the study in curriculum reviews, innovations and renewals.

Private educators and proprietors of private primary, secondary and tertiary institutions, private organizations, Parents Teachers Associations, (PTA), Media and Reporters in Education, and Non Governmental Organizations (NGO's), findings of this study would also benefit researchers and all other stake holders by adding to the pool of

information that already exists in this area. Researchers and stake holders could therefore fall back on information gathered here to either use or replicate this study in another setting, or picking from the questions raised by the present research as a topic for further research.

1.8: Scope the Study

The study is delimited to assessment of availability and utilization of electronic media in colleges of education, that offer Social Studies at NCE level in North-West Geo-political zone of Nigeria. The study is also delimited to electronic media that are used only in classroom for instructional purposes; social media is not included in this study. The zone is made up of Kano, Katsina, Kaduna, Kebbi, Jigawa, Zamfara, and Sokoto states. The study involves Social Studies lecturers and pre service NCE Social Studies teachers on training in the study area. Specifically, lecturers' qualification, status of the institutions (state and federal) and status of respondents (lecturers and students) were the main variables of the study.

CHAPTER TWO
REVIEW OF RELATED LITERATURE

2.1: Introduction

This chapter contains a review of related literature for this study. It examined after the, Theoretical Framework; The Constructivist Learning Model; The Advantages of the Constructivist Model at the College Level; Concept of Electronic Media; Historical Background of Electronic Media in Teaching; Types of Electronic Media; Utilization of Electronic Media; Teachers' Electronic Media Usage; Role of Electronic media in Teaching and Learning; Impact of Electronic Media on Learning Process; Strategies for ICT Integration in the Nigerian Schools; Electronic Media in Teaching Social Studies; Sources of Electronic Resources; Constraints to the use of Electronic Media in Teaching and Learning Social Studies; Empirical Studies; and Summary.

2.2: Theoretical Framework

The researcher based this work on: The Cognitive Theory of Multimedia Learning (CTML). The Cognitive Theory of Multimedia Learning was popularized by the work of Richard E. Mayer and other cognitive researchers who argue that multimedia supports the way that the human brain learns. They assert that people learn more deeply from words and pictures than from words alone, which is referred to as the multimedia principle (Mayer 2005a). Multimedia researchers generally define multimedia as the combination of text and pictures; and suggest that multimedia learning occurs when we build mental representations from these words and pictures (Mayer, 2005b). The words can be spoken or written, and the pictures can be any form of graphical imagery including illustrations, photos, animation, or video. Multimedia instructional design attempts to use cognitive research to combine words and pictures in ways that maximize learning effectiveness.

The theoretical foundation for the CTML draws from several cognitive theories including Baddeley's Model of Working Memory, Paivio's Dual Coding Theory, and

Sweller's Theory of Cognitive Load. As a cognitive theory of learning, CTML it falls under the larger framework of cognitive science and the information-processing model of cognition. The information processing model suggests several information stores (memory) that are governed by processes that convert stimuli to information (Moore, Burton and Myers, 2004). Cognitive science studies the nature of the brain and how it learns by drawing from research in a number of areas including psychology, Neuroscience, Artificial Intelligence, Computer Science, Linguistics, Philosophy, and Biology. The term cognitive refers to perceiving and knowing. Cognitive scientists seek to understand mental processes such as perceiving, thinking, remembering, understanding language, and learning (Stillings, Weisler, Chase, Feinstein, Garfield, and Rissland, 1995). As such, cognitive science can provide powerful insight into human nature, and, more importantly, the potential of humans to develop more efficient methods using instructional technology (Sorden, 2005).

Key Elements of the Theory

The Cognitive Theory of Multimedia Learning centers on the idea that learners attempt to build meaningful connections between words and pictures and that they learn more deeply than they could have with words or pictures alone (Mayer, 2009). According to CTML, one of the principal aims of multimedia instruction is to encourage the learner to build a coherent mental representation from the presented material. The learner's job is to make sense of the presented material as an active participant, ultimately constructing new knowledge. According to Mayer and Moreno (1998), and Mayer (2003), CTML is based on three assumptions:

I. The dual-channel assumption which states that working memory has auditory and visual channels based on Baddeley's (1986), theory of working memory and Clark and Paivio, (1991), dual coding theory.

II. The limited capacity assumption which is based on cognitive load theory (Sweller, 1988,1994), and states that each subsystem of working memory has a limited capacity.

III. The third assumption is the active processing assumption which suggests that people construct knowledge in meaningful ways when they pay attention to the relevant material, organize it into a coherent mental structure, and integrate it with their prior knowledge (Mayer, 1996, 1999).

CTML accepts a model that includes three memory stores known as sensory memory, working memory, and long-term memory. Sweller (1994), defines sensory memory as the cognitive structure that permits individuals to perceive new information; working memory as the cognitive structure in which we consciously process information, and long-term memory as the cognitive structure that stores individuals' knowledge base. Humans are only conscious of information in long-term memory when it has been transferred to working memory. Mayer (2005a) states that sensory memory has a visual sensory memory that briefly holds pictures and printed text as visual images; and auditory memory that briefly holds spoken words and sounds as auditory images. Schnotz (2005), refers to sensory memory as sensory registers or sensory channels and points out that though people tend to view the dual channel sensors as eye-to-visual working memory and ear-to-auditory working memory, that it is possible for other sensory channels to introduce information to working memory such as "reading" with the fingers through Braille or a deaf person being able to "hear" by reading lips.

Working memory attends to, or selects information from sensory memory for processing and integration. Sensory memory holds an exact sensory copy of what was presented for less than .25 of a second, while working memory holds a processed version of what was presented for generally less than thirty seconds and

can process only a few pieces of material at any one time (Mayer 2010). Long-term memory holds the entire store of a person's knowledge for an indefinite amount of time. Figure 1 is a representation of how memory works according to Mayer's Cognitive Theory of Multimedia Learning.

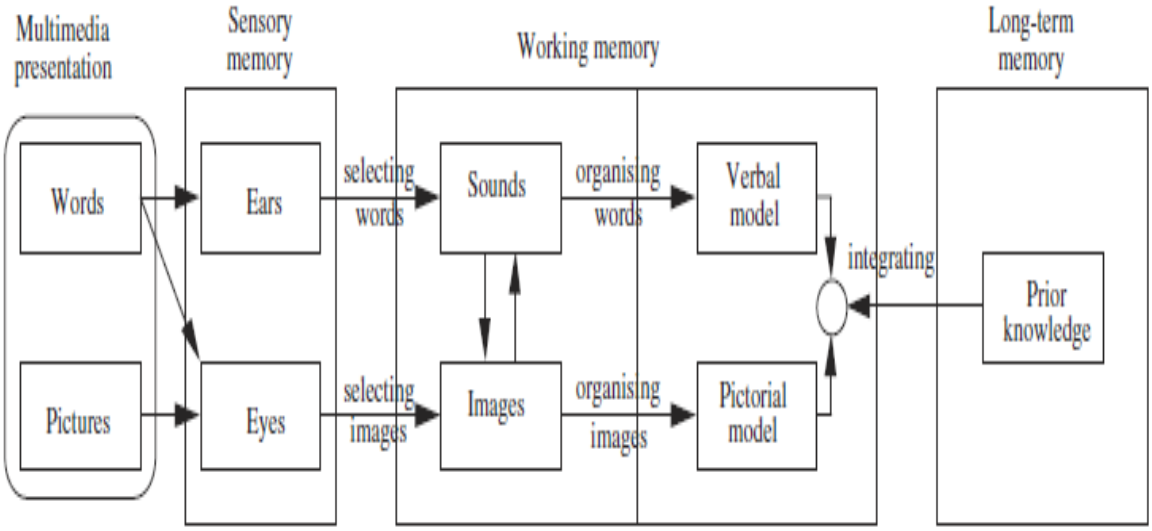


Figure 1: Mayer's Cognitive Theory of Multimedia Learning (Mayer 2010).

Mayer (2005a), states that there are also five forms of representation of words and pictures that occur as information is processed by memory. Each form represents a particular stage of processing in the three memory stores model of multimedia learning.

a. The first form of representation is the words and pictures in the multimedia presentation itself.
b. The second form is the acoustic representation (sounds) and iconic representation (images) in sensory memory.
c. The third form is the sounds and images in working memory.
d. The fourth form of representation is the verbal and pictorial models which are also found in working memory.
e. The fifth form is prior knowledge, or schemas, which are stored in long-term memory.

According to CTML, content knowledge is contained in schemas which are cognitive constructs that organize information for storage in long term memory. Schemas organize simpler elements that can then act as elements in higher order schemas. As learning occurs, increasingly sophisticated schemas are developed and learned procedures are transferred from controlled to automatic processing. Automation frees capacity in working memory for other functions. This process of developing increasingly complicated schemas that build on each other is also similar to the explanation given by Chi, Glaser, and Rees (1982), for the transition from novice to expert in a domain.

The researcher deliberately chose CTML for its being consistent with the research topic and objectives, which seeks to find out the availability and effective utilization of electronic media in the process of teaching. As it implies, the theory gave credence to importance of hearing, seeing and reading which when combined can create better learning ability.

2.2.1: The Constructivist Learning Model

The view that students construct their knowledge from individual experiences and from thinking through these experiences is called “constructivism” (Windschitl and Andre, 1998; Loyens, Rikers, and Schmidt, 2009). The constructivist model of learning opposes the objectivist idea that the best way to transmit knowledge is dissemination from expert to learner. Instead, proponents of the constructivist model of learning argue that the learner should have more control over the learning process and that individuals learn better when they discover things on their own (Leidner and Jarvenpaa, 1995). It can be argued that there are circumstances in which it would be more efficient for an instructor to simply tell an answer to the student, instead of guiding the student to find the answer on his/her own. However, constructivist proponents believe that the process of determining the correct answer for oneself, or at least formulating an idea and thinking about the question, is a very important aspect of the learning process. Likewise, Brandt (1997), observes that learners

construct knowledge by making sense of experiences in terms of what is already known. Learners transfer knowledge through experiences via mental models, which are used to assimilate new information into knowledge, and thus become expanded mental models. This knowledge transfer emphasizes knowledge construction and problem solving in domains of increasing conceptual complexity.

It can be argued that the constructivist model of learning is more appropriate where students have an existing level of education. With a course that is developed to follow the constructivist model, it is necessary for the student to have a level of learning comprehension that exceeds what is necessary for an objectivist-style course. In order for the constructivist model to be effective, the learner must have experience with hypothesizing and predicting, mentally manipulating objects, posing questions, researching answers, imagining, investigating, and inventing (O'Loughlin, 1992).

Building on the constructivist model is the resource view of learning. Here, the model depicts a changing role for the instructor; from that of an expert dispensing knowledge to one of a resource and a guide. Rakes (1996), envisions a change from traditional learning to one based on a multitude of resources being made available to a student. Rakes support the move to 'resource based learning.' He recommends increasing a student's success through the addition of practice to shift from the traditional view of learning (cognitive and behavioural), to a resource-based view of learning. Table 2.1 provides a comparison of the traditional view and resource view of learning.

Table 2.1: Traditional versus Resource-based Learning

TRADITIONAL LEARNING	RESOURCE- BASED LEARNING
Teacher as an expert model	Teacher as a facilitator/guide
Textbook as primary source	Variety of sources/media
Facts as primary	Questions as primary
Information is packaged	Information is discovered
Emphasis on product	Emphasis on process
Assessment is quantitative	Assessment is qualitative/quantitative

Source: (Rakes, 1996).

In essence, the years of formal education that a student has endured prior to college have taught him/her much about the learning process. It could be argued that the college student has "learned how to learn" - which is a prerequisite for constructivist learning. At the college level, students are able to take more responsibility of the learning process and are better fit for this style of learning.

In educational uses of technology, Jonassen and Reeves (1996), make a distinction between learning from computers and learning with computers. Much of the early research and development with technologies considered the enhanced learning that could be achieved when computers play an important and key role in delivering content and creating learning opportunities to help students make meaning and develop an understanding. In such settings, there was a distinctly diminished role for the teacher. Jonassen (1991), suggests that the more opportunistic and effective uses of technologies in classrooms are those where learning is achieved with the aid of technology, and the resulting environment is one where the technology supports and scaffolds the learning rather than being the object or derivative of the learning. McClintock (1992), also states that in a constructivist-learning environment, technology plays an acknowledged and purposeful role in the day-to-day activities, but does not become the object of instruction.

When used in a constructivist manner, students utilize technologies to;

a) Manipulate data;

b) Explore relationships;

c) Intentionally and actively process information;

d) Construct personal and socially shared meaning; and

e) Reflect on the learning process (Jonassen, Peck and Wilson, 1999).

"The technological applications which support learning in such ways are often described as cognitive tools" (Lokken, Chek and Hastings, 2003:39-41), and more research is

now showing the benefits to be derived from such applications. Cognitive tools describe such applications as:

(a) Calculators;

(b) Databases;

(c) Spreadsheets;

(d) Communications software;

(e) Semantic network tools; and

(f) Knowledge construction tools.

The critical attribute of cognitive tools is not in the information and knowledge that they carry, but the forms of learner activity and engagement that they support and encourage. Cognitive tools still need the informed teacher to design and supervise the learning activity, but they act to amplify and distribute the cognitive tasks through their design and application. Jonassen (2000), also developed the idea of computer based tools and learning environments that have been "adapted or developed to function as intellectual partners with the learner in order to engage and facilitate critical thinking and higher-order learning". According to him, the role of electronic media is to extend the learner's cognitive functioning during the learning process, and to engage the learners in operations while constructing knowledge that they would not have been able to accomplish otherwise.

Media tools enable learners to become critical thinkers. When using cognitive tools, learners engage in knowledge construction rather than knowledge reproduction (Jonassen, 1994: 35-37). By using commonly available software, learners employ technology to both construct and represent knowledge. Computers can successfully enhance the problem solving abilities of students by using project-based learning (PBL), activities; because they are used, most often, in an environment where people are drawn to collaborate naturally as a result of their cultural expectations. Tretten and Zachariou (1995), carried out an assessment of PBL in four elementary schools by administering teacher questionnaires and interviews, and a survey

of parents. The informants reported that PBL had a variety of positive benefits for students, such as, attitudes towards learning, work habits, problem-solving capabilities and self esteem.

According to a three-year study of mathematical instruction, Boaler (1999), reported that PBL schools had better national examination results than did traditional schools, and the PBL students developed a more flexible form of mathematical knowledge that they were able to apply in a range of settings. Learning, which occurs in the context of problem solving, is more likely to be retained and applied than inert knowledge acquired through more traditional teaching methods. A study by Ryba and Brown (2000), conducted in two classrooms in an elementary school in New Zealand found that, teachers' beliefs about themselves and their roles in the classroom, as well as their philosophy of education had a central place in shaping the nature of their computer use. Those teachers who saw learner-centered classrooms and authentic learning tasks as central to the success of their students were more likely to use the technology on a continuing basis. Means and Olson (1997), found that technology increased the complexity with which students could deal successfully and created a multiplicity of roles, leading to students' specialization. It allowed in-depth exploration of a smaller number of ideas and related facts around authentic and challenging tasks. They further state that:

I. When students are using technology as a tool or a support for communicating with others, they are in an active role rather than the passive role of recipient of information transmitted by a teacher, textbook, or broadcast.

II. The student is actively making choices about how to generate, obtain, manipulate, or display information. Media allows users to enter virtual environments that include text, sound, visual images, animation and video.

In a related study Ayersman (1996), found that the use of media applications promoted deep comprehension and enhanced listening comprehension, story production and decoding skills and improved ability to discover links among people, places, events and issues within historical contexts. Earlier, Riddle (1995), investigated that students using

hypermedia demonstrated increased ability to convey insight and individuality, greater descriptive detail, and unique perspectives. In the USA, The Challenge 2000 Multimedia Project supported by multimedia gives students opportunities to use technology effectively in the planning, development and presentation of their projects (Thomas, 2000). Students who took part in this project had better results than comparison students on content mastery, audience sensitivity and coherent design.

In addition to media applications, the Internet may provide a rich source of outside information resources that allow students to address complex problems. The Internet connects teachers and students to people outside the school environment, and providing access to expertise not available locally. Irving (1991), conducted a two-year study in six schools in which students were given access to on-line information services. The project was designed to stimulate students' use of a variety of information resources and the study of contemporary topics. Conclusions of the study were that "on-line services provided immediate, on-demand and up to date material not available in or near the schools, and access to specific information on topics for which school books either did not exist or were not in the school resource collection". Constructivist learning works well with web-based activities. Students entering this environment bring with them their prior knowledge. They engage in a web-based activity such as searching the Internet, gathering information, organizing their thoughts, or communicating with peers via email, thus adding to their cognitive infrastructure.

2.2.2: The Advantages of the Constructivist Model at the College Level

Individuals are thought to learn more effectively when they are made to discover knowledge for themselves rather than when they are instructed (Leidner and Jarvenpaa, 1995; Benbunan-Fich, 2002; Hiltz and Turoff, 2002). When the constructivist model is implemented at the college level it could be advantageous to the learning process. The role of the instructor in this setting is to act as a guide in the learning process. The instructor poses

questions for the students to think about and then the instructor helps students navigate toward answers.

In this type of environment students are learning the course material and also discovering their own abilities to contemplate and to research a topic. i.e., instructing students on learning how to create knowledge. This type of education is applicable to the environment that a student will face after the university experience. In the corporate world, there may not always be someone who is willing and/or able to provide the immediate answer a teacher will not always be available to provide or acknowledge the correct answer to a problem. There may even be more than one correct answer. The student who has learned to discover knowledge for him/her is better prepared to come to a conclusion and the supporting process that led to the conclusion. This will provide the student an advantage in many situations. Bonwell and Eison (1991), state that students must engage in higher thinking tasks such as analysis, synthesis and evaluation, in order to better incorporate the learning into their experiences.

Another aspect of constructivist learning is that it lays the foundation for the concept of lifelong learning. Since the constructivist model of learning requires the student to be more active in and take more control over the learning process, it helps to develop the student's ability to learn on his or her own and supports the concept of lifelong learning. The student will likely be more receptive to formal learning opportunities after college courses are complete. Huang (2002), recognizes the need for instructional materials to support the constructivist theories and states that builders of online courses need to use some special techniques and perceptions to lead to success. Huang continues that adults have special needs and requirements as learners compared with children and adolescents in which 'self-exploration' is important. Feedback is a component of learning that is supported by the constructivist model. Gagne, Briggs and Wager (1992), propose nine elements that should be

present in any lesson in order for learning to occur. These nine elements form a framework where each element leads to the next higher level element.

The nine elements are:

i.	Gaining attention	(“reception”)
ii.	Informing learners of the objective	(“expectancy”)
iii.	Stimulating recall of prior learning	(“retrieval”)
iv.	Presenting the stimulus	(“selective perception”)
v.	Providing learning guidance	(“semantic encoding”)
vi.	Eliciting performance	(“responding”)
vii.	Providing feedback	(“reinforcement”)
viii.	Assessing performance	(“retrieval”)
ix.	Enhancing retention and transfer	(“generalization”)

Of the nine “conditions for learning” that Gagne, Briggs, and Wager, (1992), provide, another research shows that eliciting performance (“responding”) and practice from the student as well as providing adequate feedback (“reinforcement”) are the events most directly connected to student success (Martin, Klein and Sullivan, 2007). Finally, Yadin and Or-Bach (2010), discuss the continuing need for self-assessment and individual learning.

2.3: Concept of Electronic media

All the ways, channels, tools and aids through which information, instruction, and/or knowledge could be conveyed to learners in typical social studies, can be seen as instructional media. Instructional media, therefore, are such things (materials and equipment) that can help the teacher to communicate effectively needed knowledge or ideas to the students; such that at the end of such instruction, the student can be that which the teacher

predetermined in his objective statement. As Nwanna-Nzewunwa (2003:17), puts it, "instructional materials are those materials that are used to arouse students' learning." They are also called teaching aids, which brings life to learning (Alaka, 1978).

The term electronic as defined by Chinedu, Nwanna-Nzewunwa and Michael, (2010), is something having or operating with the aid of many small components (e.g. microchips) that control and direct an electric current. Thus, electronic calculators, electronic keyboards, electronic dictionaries, electronic Bibles, are all examples of electronic equipment. Electronics is the branch of science and technology that deals with the behaviour of electric currents in electronic equipment. Electronic media relates materials, equipment, and processes that utilize electronic technology to pass on information, knowledge, and ideas to people living in a society. For instance, radios, televisions, computers, e-mails, and projectors can be used by instructors to educate their students effectively. They are special types of instructional materials.

Instructional materials as defined by Good (1973), in Awotua-Efebo (1999:21), are: "Any device with instructional content or function that is used for teaching purposes, including books, textbooks, supplementary reading materials, audiovisual and other sensory materials, scripts for radio and television instrumentation, programs for computer-managed packaged sets of materials for construction or manipulation." From this perspective, it can be reaffirmed that the term instructional media would include any material or equipment that a teacher can profitably use to facilitate teaching to and learning by his students. The design, development, and art of producing such materials are a major concern of educational technology (Vikoo, 2003). Thus, educational technology has been viewed by Dike (1999), as "a systematic application of scientific or organized knowledge to identifying and analyzing educational problems, evolving and managing programs for solving these educational problems." Literally, media that use electronics or electromechanical energy for the end user to access the content are called electronic media (Chiu, 2012). This kind of media are

opposite to print media that the end-user does not need to use electronics or electromechanical energy to access its content although print media were created using electronic tools. Video recording, audio recording, multimedia presentation, slide presentation, CD-ROM, and online content are the primary sources of electronic media that are familiar to the general public. Any equipment used in the electronic communication process, for example, television, radio, telephone, desktop computer, game console; handheld device may also be considered as electronic media (Chiu, 2012).

Meanwhile, education technically is the formal process by which society deliberately transmits its accumulated knowledge, skills, customs and values from one generation to another (Kumar, 2012), in Chiu (2012). Education can be divided into two primary divisions, firstly is teaching, and secondly is learning. Teaching is imparting knowledge to, or instructing someone on how to do something, especially in a school or as part of a recognized program. (Smith, 2004) in Chiu (2012). Then, learning is the process of acquiring knowledge of or skill in doing something through study or experience or by being taught. From generation to generation, education is the main part in people's life (Smith, 2004), in Chiu (2012).

Teaching and learning are persistent process. Because of this persistent process, people are competing with each other to become the best among others. So, they generated many techniques to enhance their study performance. One of the techniques is using electronic media to enhance their study performance. In addition, our main field for this research report is how electronic media enhance study performance.

2.3.1: Historical Background of Electronic Media in Teaching

Media and educational movement was in fact born in Europe and was initially based on the material of cinema and press (Fedorov, 2008). In the early 1920s in Paris the Cinema Club Movement emerged, with the distinct media educational aims. As early as 1922 the first National Conference of the Regional Departments of Film Education (*Offices regionaux du*

*cinema educateur***)** was held in France. At one of the congresses on education a suggestion to prepare the cinema educators in universities was made (Martineau, 1988). Nazis occupation interrupted the intensive development of media education in France; however after 1945 it got another impulse, theories of media education dominated France at that time. The history of media education in Britain is also a few decades old. Same as many other countries, this movement began with film education, and then embraced a wider spectrum (press, radio, television, video, advertisement and Internet facilities). There are several organizations in UK that deal with various problems of media education. The Educational Department has conducted conferences and seminars, workshops for teachers. In the 1930s British Media Education (although this term was not used at the time because it dealt with education with mass media application - film, radio, press), was developing mainly aimed at the opposition of harmful media influences.

The history of Russian Media Education goes back to 1920s. The first attempts to instruct in media education (on the press and film materials, with the vigorous emphasis on the communist ideology), appeared in the 1920s but were stopped by Stalin's repressions. The end of the 1950s to the beginning of the 1960s was the time of the revival of media education in primary and secondary schools, universities, children centers (Moscow, Petersburg, Voronezh, Samara, Kurgan, Tver, Rostov, Taganrog, Novosibirsk and Ekaterinburg), as well as the revival of media education seminars and conferences. France maintained the status of a leader in the world media education process of that period. Since 1952 the courses of audiovisual education for teachers have been taught. Due to the rapid development of radio and television, the French Union of the Regional Film Education Departments was renamed into the French Union of Audiovisual Education in 1953. In 1963 the ideas of aesthetical theory of media education were reflected in the documents of the Ministry of Education of France. Teachers were encouraged (including the money reward) to educate their students in cinema literacy (study of the history, language, genres of the film

art, technology of the film shooting, appreciation of the aesthetical quality of a film). One of the founders of media education Freinet joined the discussion and emphasized that cinema and photography are not only the entertainment and teaching aid, or the art, but the new form of thinking and self-expression (Freinet, 1963), in Fedorov (2008). He believed that schoolchildren must be taught the language of audiovisual media in similar way they are practically taught basics of art.

Since the beginning of the 1960s the school and university audiovisual education (courses on film education were taught in 23 universities) was developing under the influence of the breakthrough of European "author's cinema", especially the French "new wave" (*nouvelle vague*). In 1950 Britain, the concept of "screen education" was first formed, when school teachers founded the Society for Education in Film and Television (SEFT). The term "screen education" came into sight internationally in the beginning of the 1960s. Before that the term "film education" was wider spread, but with the development of television many started to believe that these two screen media should be united for educational purposes (Moore, 1969), in Fedorov (2008). Under the influence of the theory of "authors' cinematography", British media education of that time was connected with the study of media as popular culture through its best examples (popular arts paradigm). At the same time ideas of McLuhan had a certain impact on the development of media education in Britain. And though in 1964 only a dozen out of 235 colleges of education in England and Wales offered its students special courses on screen arts (Marcussen, 1964), in Fedorov (2008), media culture in some or other form began to be studied in the majority of British universities.

Media education on the American continent was in its rudimentary stage until the 1950s. Canada is the home country of the famous media theorist McLuhan. And it was he who developed the first in the country special course on media culture in the 1950s. The history of the Canadian media and electronic media education commenced with the film study courses. Film education became a common phenomenon in Canadian secondary

schools (Andersen and Glem, 2003). This movement was called Screen Education. In 1968, the first organization united Canadian media educators Canadian Association for Screen Education: CASE was formed. A year later it held the first big national conference in Toronto. Like in Great Britain, Canadian media educators of that period relied mainly upon the aesthetic (discriminatory theory of media education), (Moore, 1969; Stewart and Nuttall, 1969), in Fedorov (2008). Still in 1911, when in the United States of America, (USA) the National Council of Teachers of English was established, teachers discussed the topic of the educational value of films (Costanzo, 1992). Thus, media and electronic media education in the USA had to some extent existed in the form of separate directions since the 1920s (film education, media education on the material of press and radio). For instance, Dale of Ohio University promoted media education through press back in the late 1930s.

However, such training was offered essentially at the selected departments (journalism, film), of few universities and was not widely spread. Since 1958, the program Newspaper in Classroom was introduced in secondary schools, which was sponsored by press through the American Newspaper Publishers Association (ANPA). 95000 teachers from 34,000 schools joined it, involving more than 5 million students (Sim, 1977), in Fedorov (2008). And while by the end of the 1940s only 5 American universities offered film electives, at the beginning of 1950s there were already 10 of them. By the mid 1960s courses on radio and television were taught in 200 colleges, and the number of such courses exceeded two thousand (Marcussen, 1964). In the 1960s, Media Education in the USA like in many other leading countries (France, Canada, and the United Kingdom), was centered on Film Education. In 1969, Utah and Ohio universities supported the development of the series of materials for 'critical viewing' for integration in Oregon, Syracuse, New York, Nevada and Florida (Tyner, 1999 in Fedorov 2008). Thus, film education became the first step for modern media education.

However, in most cases, screen education studied media technology (for example, students acquired skills to use video equipment) and not media culture. That is, with the help of audiovisual devices they shot some film sequences, or media materials served as an illustration for group discussions on topical social issues (for example, about Vietnam war and social rights defense). Still, even back then a lot of teachers dedicated their classes to the study of film language, and aesthetics of a film. Certainly, school media education was not obligatory in the USA, but teachers-enthusiasts tried to broaden the limits of media preferences of their students, lead them out of the vicious circle of pop culture, and get them interested in Art House production. They believed that the artistic perception of the audience might be developed up to the degree of an adequate understanding. The 1960s became 'The Golden Age' for the aesthetic approach to media education in the USA, principally in the higher education domain. Many universities added film studies into their curricula, with contents based on the visual language, film history and works of outstanding directors.

The powerful theoretical impact on media education all over the world was executed by the studies of Lasswel and McLuhan. It was McLuhan who first supported the argument for importance of media literacy in the 'global village' (McLuhan, 1964), into which according to him, the planet would turn after the unbound distribution and mass consumption of a wide spectrum of media texts in any part of the world. The development of media education at all its stages of existence was significantly promoted by the United Nations Educational and Cultural Organizations, (UNESCO). In the mid 1970s UNESCO proclaimed not only its support of media education, but included media education in its list of priority directions for the next decades. In 1972 media education aspects were included into the program documents of the Ministry of Education in France. In 1975 the Institute of Training for Film Culture Development (*L'Institute de formation aux activites de la culture cinematographique – IFACC*) was established. It revived the process of media education in universities, orientated it to a great extent, to the semiotic theory. In 1976, media and

electronic media education was officially part of the national curriculum of secondary schools. Schools were made to spend up to 10% of their time on realization of this objective. In the Ministry's document of 1978, one can the synthesis of the aesthetic and practical concepts of media education (Chevallier, 1980). Since 1979 media education (*education aux medias*) in France has been maintained by several French Ministries.

During the 1980s, Media Education in the USA continued to widen the sphere of its influence. One after another, pedagogic and research associations were set up in various states, with an agenda to integrate some aspects of media education and media culture in schools and universities. In the majority of universities media courses became a common phenomenon in the 1980s. However, media education did not gain the status of an academic compulsory subject in primary and secondary schools. Certainly, the USA is a country embracing huge territories and populations, compared to Norway or Finland for instance. An American researcher, (Kubey, 1998), suggests that not only geographic and demographic factors hindered the development of media education. A certain hindrance on the way of the consolidation of the media educators' efforts was the American system of education on the whole, where each of the 50 states has its own policy on education and every educational institution – own curriculum and programs. Moreover, unlike other English-speaking countries (for example, Canada or United Kingdom), the leading media education communities in the USA are located outside the system of academic education. Besides, the pace of the media education development in the USA was slowed down by the relative cultural isolation of Americans from the rest of the world. It is known that Americans traditionally prefer to watch, listen to or read American media production.

During the time when in the Western hemisphere the intensive change of Media Education approaches was going on, in Russia of the 1970s–1980s Media Education was still developing within the aesthetic concept. Among the important achievements of these years one can recall the first official programs of film education, published by Ministry of

Education, increase on number of dissertations on media education, experimental theoretic and practical work on media education by Baranov (Tver), Penzin (Voronezh), Polichko, Rabinovich (Kurgan),.Usov (Moscow), and others (Fedorov, 2008). Along with Britain, France still remains one of the most active European countries to develop the media education. In France, the cradle of the cinema, the film education is still standing its ground. However a film is studied among the other cultural and language means of expression. The theory and practice of audiovisual education (first of all, film education), in France was first systematized and analyzed by a group of researchers headed by Martineau and published in the late 1980s and early 1990s (Martineau, 1988). A little later, UNESCO (Bazalgette, Bevort, and Savino, 1992) and the European Council (Masterman and Mariet, 1994), published several fundamental researches, this time dedicated to media education on the whole. A considerable part in these works was devoted to the analysis of the French experience in the field.

UNESCO (2004), works nowadays not only with teachers, students and pupils, but also with the teachers in clubs, journalists, and librarians. UNESCO (2004), considers the work with information as a priority, due to its understanding of media education as primarily civic education. The UNESCO (2004), staff believes that media education can be integrated with any school subject. Since 1995, already at an international level, UNESCO (2004), team launched the program 'FAX'. The pupils issued school-newspapers that were then sent by fax to partner schools in different countries. Now this program takes advantage of the Internet technology logically, because recently UNESCO has paid much attention to the media education potential of the World Wide Web (Bevort and Breda, 2001). Particularly, in the early 2000 the program 'Educanet' was developed, with the mission to develop the critical, autonomous thinking related to Internet information; the responsibility of the students. As it has already been mentioned, media education in France has usually been integrated into the required school subjects (for example, French, History, Geography), though there are

optional courses on media culture as well. Specific courses on film, television journalism and media culture are offered in numerous specialized lyceums and universities. In higher education institutions of Paris, Lyle, Strasbourg and some other cities, special media studies courses are taught for pre-service teachers. (Gonnet 2001).

Since the late 1990s, a new program of the electronic media integration has began in France. According to it, for instance, each class should have access to Internet and its own e-mail address. The project is sponsored by the regional administrations and the Ministry of Education. New electronic media promotes the connection between the smaller schools in remote rural areas, and now they can exchange information and research results, communicate and use computers in teaching and learning. Teachers have an access to the database CNDP (*Centre National de Recherche Pedagogique*) and download necessary materials from there. The Key concept of media education in France is the word combination *l'education critique aux medias* (or *le jugement critique*), critical thinking development. Evidently, one can draw a clear parallel with the concept of the critical thinking by the British Masterman. The view is that not only should students critically perceive and evaluate media texts, but also realize what kind of impact they exercise in surrounding reality (media as instruments of self expression of a personality, as means for the cultural development), the way media texts influence the audiences. (Bazalgette, Bevort, and Savino, 1992; Bevort, 1999; Gonnet, 2001).

2.3.2: Information and Communication Technology Policies and the Nigerian Education System

Although computer entered into the country's education system in the late 70's and early 80's, no concrete policy was evolved for its entry into the nation's education system until the evolvement of the National Policy on Computer Education in 1988 (Federal Republic of Nigeria, FRN, 1988). The 1988 document contained information on the application of computer at various levels of the country's education, and with issues related

to basic objectives, hardware and software requirements. The document also comments on teacher training, specifically, for the secondary school level. The implementation of the policy was kick started with a training program conducted for 197 teachers from across the country. In addition, computer systems were introduced into the federal unity schools and armed forces secondary schools. However, the initial enthusiasm gave way and little was achieved about the set objectives.

Further impetus for ICT integration in the Nigerian school system came with the 2001 National Policy on Information Technology, tagged "Use IT". It was a major step in the integration of ICT in all facets of the country's life. The document, among others, recommended a start up grant of at least $158m and two percent allocation from the total national budget for articulating the vision of the document. The Nigerian National Policy on IT (FRN, 2001), has within its purview the vision, mission, general objectives and strategies for the implementation of the policy, and application for all sectors (health, agriculture and tourism), was also embedded. Ironically, education was subsumed under human resource development. The document, in the area of education, among others, envisaged the development of IT curricula for all levels of Nigerian education, the facilities, and IT dedicated institutions.

Although the document is a step in the right direction, however, it is inadequate to impact positively on the Nigerian education as the philosophical frame of reference is market driven and its little emphasis on the real integration and infusion of ICT in the country's education system (Yusuf, 2005a). In addition, the document was silent on the education of the disabled and other disadvantaged. The revised National Policy on Education (FRN, 2009), emphasized the need for ICTs at all level of Nigerian education. For instance, the document stated inter alia in Section 11 sub-section 102 (a) that "All states, Teachers Resource Centres, University Institutes of Education, and other professional bodies shall belong to the network of Information and Communication Technology (ICT)" (p. 53). The

document noted further in Section 11 sub-section 102 (d) "Government shall provide facilities and necessary infrastructure for the promotion of Information and Communication Technology at all levels of education" (p. 53). Another major aspect of the document that is ICT related is the national virtual library project aimed at the rejuvenation of the Nigerian schools through provision of easy access to current books, journals, and other information resources using digital technology (FRN, 2009). It must be emphasized, however, that little or no efforts have been made to implement the ideas set out in these 2001, 2004 and 2009 documents.

Another major policy document on ICT use in education is the Ministerial Initiative on Education for the Nigerian Education System (FME, 2009). The document contains information on the theoretical framework for e-education in Nigeria, analysis of the Nigerian situation, that is, factors inhibiting or promoting the integration of ICTs in education, components of e-education in Nigeria, e-education blue print, elements of the blue print strategies, decade goals (2015), mid-decade goals (2009) and the action plan, among others. The ministerial initiative document though not encompassing enough to address ICTs integration in Nigerian schools, contained policy statements, which could leapfrog the integration of ICT in Nigerian schools. However, the removal of the Minister of Education who initiated the document, probably accounts for non-implementation of the document.

The implementation of the 1988 national policy on computer education was precursory by the training of teachers in Federal Unity Schools and Armed Forces Schools. To ensure effective implementation of the 2001 National Policy Information Technology (IT), the Nigerian Information Technology Developments Agency (NITDA) was established. In addition, the Digital Bridge Institute, in Abuja, was established by the Nigerian National Communication Commission (NCC), to assist in the promotion of ICTs in Nigeria. In spite of all these efforts, ICTs have not impacted greatly on the Nigerian School System.

Studies have established positive attitude among educators in Nigeria towards computer education. For instance, Yoloye (1990) in his finding revealed that educationists at the University of Ibadan have positive perception and attitude towards computer and, in fact, would like to be trained to use it. Similarly, most teachers in Nigerian secondary schools have positive attitude towards computer education (Yusuf, 1998). However, empirical studies have established that educationists at the University of Ibadan level of use of computer is very low (Yoloye, 1990), and that wide gap exists between implementation and requirements outlined in the Nigerian computer education policy (Jegede and Owolabi, 2003). In addition, reasonable computer studies are yet to start in Nigerian secondary schools, the computer-student ratio is small, funding by government has not been encouraging, computer education syllabus is unpopular among students and parents and thus hardly implemented, and teachers are inadequate to implement computer education (Jegede and Owolabi, 2003). Teachers in Nigerian secondary schools cannot implement computer education because majority of the teachers are not competent in basic computer operation and in the use of simple application software (Yusuf, 2005b). In view of these apparent lacks of proper implementation of ICTs at various levels of Nigerian education, it is important to examine barriers militating against effective implementation of ICT globally, as these may serve as lesson for proper implementation of ICT in Nigerian Schools.

2.3.3: Types of Electronic Media

There are numerous types of electronic media resources. The following are some of the electronic media applicable to classroom situation:

Audio Media:

Audio media are those electronic devices that produce sounds without pictures such as radio. Audio media offer a wide range of opportunities for group or individual use. They can be used to deliver instruction involving verbal information, and also for guiding the learning of intellectual and motor skills. With the availability

of small compact cassette recorders, audio medium can be produced by teachers. It can also be used to supplement other media like filmstrips and slides. They are also relevant for learning objectives related to the affective domain of learning. Audio recording can provide response drill in mathematics, and language. Furthermore, several copies of the media can be produced easily. Audio medium is equally good for all types of instruction, from the precision of speech to the mental imagery formed by music and sound effect (Kemp and Smellie, 1989).

Overhead Projectors:

Overhead projector is a device that shows information or pictures on a wall or screen by shining a light through a sheet with the information or pictures on it. Using the overhead projector, transparent materials are projected so that a group can see. It is simple to operate, and it is a versatile media for teachers to use. Transparency can face the audience from the front of the room and maintain eye-to-eye contact with students while projecting transparencies in a lighted room (Kemp and Smellie, 1989 and Blythe-Lord, 1991).

Slide Projectors and Filmstrip Projector:

Slide projector is an opto-mechanic mechanic device for showing photographic slides. Slide projectors are used to project slides - small format photographic transparency in colour or black and white, individually mounted and used to transmit instructional content. On the other hand, filmstrip projectors project images container in filmstrips, which are series of small slides photographed in permanent sequence on a 35mm or 16mm film either in colour, or black and white. Some filmstrip projectors can also be used to project slides. Teachers can use filmstrips and slides to enrich their instruction. They are less expensive, easily handled and stored for future use. They are adaptable for use in every subject area, and the rate of presentation for classroom use\can be controlled by teachers using remote, reverse, and advance mechanisms. Their presentations can be

accompanied with print or audio recording (Farrant, 1981, Kemp and Smellie, 1989, Blythe-Lord, 1991,).

Film Projector and Video Player/Projector:

Film projector or movie projector is device used for projection of moving images from films. Film projectors and videotape projectors are used to project motion pictures, when motion is a significant factor of a subject. Educational films are in black and white, and colour. There are also sound and silent motion pictures. Videotape availability has further widened the possibilities for the use of motion pictures, as they can be shown through monitor, that is, cathode ray tube, or projected using video projector or through the digital projector, for group use.

Motion pictures are relevant for all subject disciplines, in sciences, art, social sciences, and physical education. Motion pictures when accompanied by sound, may constitute a very effective way of emphasizing distinctive features for the tasks, which needs distinguishing the visual aspects of simulation. Motion pictures are also very good for ensuring students' positive attitude toward social studies of instruction. They can also be used to modify students' attitude in such areas like ecology, good work habit, hygiene in health education, and so on (Blythe-Lord, 1991).

Multi-Media Presentation:

This involves combinations of visual materials. It is a learning resource package, which can be effective when several media are used concurrently for specific instructional purposes. When two or more pictures are projected simultaneously on one or more screens for group viewing, the compound concept multi-image is used. However, when two or more different types of media are used sequentially in a single instruction or for self-paced learning package, the term multi-media is used. Using multi-media or multi-image, a large amount of information can be passed across to students, and high interest can be created in students.

Furthermore, different media can be tailored towards different objectives outlined for the lesson (Blythe-Lord, 1991).

2.4: Utilization of Electronic media.

According to a 1999 National Center for Educational Statistics study on teacher quality in the USA, only 20% of all teachers feel very well prepared to integrate technology into their teaching (U.S Department of Education, 1999). Similarly, Matthews (1998), examined technology use by rural teachers and found that more than one half of the teachers perceived themselves as novices in all aspects of technology use, and almost one third to one half of the teachers never actually used technology for educational purposes. His study also revealed that fewer than 30% of the public teachers used Internet applications in their classrooms although U.S Department of Education (1999), reported that the number of schools with Internet connection increased by 43% between 1994 and 1997.

Although several reports refer to equipment, software, time, and training as the most common barriers to the integration of technology, the elimination of these barriers does not necessarily facilitate a smooth transition to technology use by classroom teachers (Hall, 1997). Teachers may not have had the necessary training and experience in using technology during their pre-service education. Even those who have received professional development in pre-service years may not feel fully comfortable with their technology skills and knowledge; therefore they may feel unprepared for technology integration (Ponsessa, 1996). In a study by Strudler,and Wetzel (1999), , it was that technology integration attempts were not only time consuming but also frustrating since they had not been properly trained during their pre-service years.

According to the most recent research by the National Center for Education Statistic in the USA, nearly 70 percent of teachers do not feel well prepared to use computers and the Internet in their teaching. Similarly, in a survey of 4,049 elementary and secondary school teachers, less than 20% viewed themselves as very well prepared to incorporate technology

into instruction (Archer, 1999). There may be several factors for teachers' feelings of being unprepared to use instructional technologies. First, when professional development is available, teachers typically receive only basic knowledge about the way they should operate the computers and software, not information on how to integrate the technology into instruction or on how to assess its benefits (Hasselbring, Barron and Risko, 2000). Although they report desiring to use computers, and have gained adequate technical skills, they lack pedagogical knowledge about how to implement computers within the more routine tasks of teaching and managing their classrooms. In cases where technology-based instruction has been successful, the research suggests that it is most often the result of using the computer to deliver well-designed and well-managed instruction (Hasselbring and Williams Glaser, 1999). Thus, the focus is placed on the teacher's actions in the classroom rather than on the technologies that were utilized in educational setting.

Second, the lack of teachers` beliefs about their ability to use technology in instruction (self-efficacy and self-confidence) has been shown to influence the levels of technology use by pre-service teachers (Albion, 1996). Olivier and Shapiro (1993), argue that, observing models increase one's feelings of confidence. However, Faison (1996), found that teacher educators failed to model instructional technology use and did not require students to use technology in their classrooms and field-based assignments. Therefore, role models and motivational factors should be included in pre-service education programs. Likewise, Beaver (1990), examined the amount of anxiety undergone by pre-service teachers at a major university in the USA. According to the survey results, students reported a high level of anxiety when asked whether they felt prepared to use technology in their future teaching; because more than half of the students were not required to use it in their education courses.

By developing and employing Attitudes towards Computer Technologies (ACT) and Self-Efficacy for Computer Technologies (SCT) instruments, Delcourt and Kinzie (1993)

assessed pre-service teachers` perceived usefulness of and comfort level with specific computer technologies. They administered the instruments to 328 students enrolled in teacher education programs in the USA, and concluded that there was a strong association between time spent using computers and students` attitudes and self-efficacy. Further, teachers may sometimes resist using technologies based on their feelings of discomfort, dislike and even fear of technology (Stone, 1998). Hannafin and Savenye (1993) reported several possible explanations for teacher resistance to using computers. These reasons included:

a) Doubt that computers improve learning outcomes;

b) Resentment of the computer as a competitor for student's attention;

c) Unsupportive administrators;

d) Increased time and effort required of the teacher; and

e) Fear of losing control of center stage, as well as fear of looking stupid in front of the class.

For effective technology integration, they further stated that there needed to be a fundamental shift in the role of teacher in order to benefit from the interactive nature of the technology and its capacity to enable student centered exploration. The teacher can no longer be a dispenser of information to relatively passive learners. They stressed that technology-oriented teacher's new role was described in the literature as manager of information, coach, guide, organizer, initiator and diagnostician. They put the role of traditional lecturer and imparter of knowledge at one end and the role of coach, observer, and facilitator at the other end of a continuum, and concluded that the traditional end of the continuum embraces behaviourist learning theory while the other end is likely to embrace constructivism.

In their research, Hannafin and Freeman (1995), investigated pre-service and in-service teachers` beliefs on knowledge acquisition by means of a survey touching on knowledge acquisition, views from objectivism to constructivism. They found that experienced teachers had a tendency to embrace objectivist view of learning whereas pre-

service teachers held a constructivist notion of learning. Based on the interview results, they also concluded that external sources of influence and classroom management issues might create an environment that favors implementation of objectivist-based computer software programs rather than those that are grounded in the constructivist perspective.

In the USA, many schools have spent an extensive amount of money to purchase computers or to upgrade their instructional computing capacity with the hope that the mere presence of these technologies will promote positive instructional changes. However, they were quick to discover that technology alone does little to support changes in the way teachers think about teaching and the way students think about learning. These types of changes emphasize a modification in a teacher's pedagogical belief system, not simply a change in the tools that are used to facilitate this process (Hasselbring, Barron and Risko, 2000). Change will not occur by simply adding a course or recruiting a new faculty member who understands technology. What is required is a transformation of the culture of teacher education, one in which technology is seen as changing relationships between students and teachers and between learners and knowledge.

Also, Dexter, Anderson, and Becker (1999), examined the use of computer technologies by teachers and their perceptions of the impact of computers on changes they made in their classroom practices. Their informants, who completed a questionnaire and a series of semi-structured interviews, included 47 teachers from 20 elementary and secondary schools in the USA. The teachers were categorized as being constructivist, weak constructivist and substantially constructivist according to their responses to the questionnaire. Through the interviews, the researchers established that the teachers that fell into the weak or substantially constructivist categories felt that technology helped them change but they did not acknowledge it as the catalyst for change towards more constructivist practices. Rather, they recognized that reflection upon experience, classes taken during their undergraduate education, context and culture of their school and school-wide initiatives and

programs had the most profound effects on changing their teaching styles than mere presence of technology.

In a similar vein, Roblyer and Erlanger (1998), had earlier agreed in their research that teachers responded differently to technology integration because of their prior experiences with technology as pre-service teachers as well as the encouragement provided in their past and present educational environments. Technology has also impacted pre-service teacher education programs at many universities. As an example, new initiatives for prospective teachers enable them to view best practices via streaming video over the web. When incorporated with online discussions and teacher/facilitator annotations, the support a teacher needs in implementing a vision or changing a practice is greatly enhanced (Herbert, 1999). According to the study conducted by Howard, McGee, Schwartz, and Purcell (2000), living-and-learning environments for the training can foster rapid changes in teachers` epistemological beliefs.

Results indicated that teacher epistemology became significantly more constructivist on three of four measured epistemological dimensions, and the training program was very effective and that certain epistemological dimensions are subject to change. Teachers learned about constructivism by doing constructivism. Individually and collaboratively, teachers learned how to use the technologies by incorporating them into the design of lesson plans. In retrospect, trainers observed that one of the most powerful influences for epistemological change was the teacher-to-teacher encounter. Moreover, Davis and Resta (2002), concluded that electronic collaboration that was not constrained by time and space was an effective means of providing additional mentoring and support to beginning teachers in their first years of teaching. A research by Ismat (1995), found that half of the educators reported being prepared to use drill-and practice tutorials, games, word processing and publishing applications, however less than 10% felt competent to use multimedia and presentation packages, electronic network collaboration capabilities, or problem-solving applications.

Parallel results were obtained from a national survey in the USA. The most common use of technologies among all elementary and secondary schoolteachers surveyed were word processing and skill practice games while the rare uses included spreadsheets, databases, simulations and exploratory type software. Most of the teachers identified improving computer skills were asked to classify their objectives for student computer use; consequently, they were not using technology for information analysis, exploration and other higher order and critical thinking skills that are crucial for conceptual understanding (Education Week, 1999).

Another related research by Hasselbring, Barron and Risko (2000), asserted that early efforts to introduce pre-service teachers to technology were addressed by offering stand-alone courses usually focusing on acquisition of programming language. However, many of the leading schools of education quickly became dissatisfied with the results of these attempts and decided to place emphasis on using technology as an instructional tool (Erion and Moeller, 1991). It quickly became apparent that stand-alone technology courses were of limited value to pre-service teachers, primarily because the approach did not provide aspiring teachers with an instructional model for using technology in classrooms (Callister and Burbles, 1990). Accordingly, several schools of education abandoned the stand-alone courses in favor of the integration of technology into the entire educational curriculum offered to pre-service teachers. Other schools maintained that a fundamental course could provide a solid foundation for integration in other courses (Hasselbringet, Barron and Risko 2000). In a similar vein, Wetzel (1993), argued that pre-service training programs should require a core course in educational technology coupled with technological experiences woven throughout the method courses. Strudler and Wetzel (1999), also recommended combining technology integration courses with regular teacher education courses.

Another research by Vannatta and Beyerbach (2000), also pointed out that technology integration must be connected to course content, objectives, and assignments, and addressed

much earlier in the teacher education programs. According to their study, the majority of pre-service teachers reported a change in their vision that included a more constructivist approach, where a variety of technologies and applications are used to create products, facilitate processes, and analyze problems. Halpin (1999), found out similar result in a study that consisted of 73 pre-service teachers in an integrated elementary methods course prior to their teaching experiences. The results of this study indicate that the integration of computer literacy training into methods courses did provide future teachers with the confidence to transfer their computer skills into their classrooms based on their own exploratory experiences. It is important to integrate the use of computer applications into the pre-service methods courses already in existence to give the teachers the opportunity to experience exactly how technology can be an integral part of the daily operations of the classroom.

As Sandholtz, Ringstaff, and Dwyer (1997), pointed out, the professional development and teacher preparation programs have not caught up with the needs of teachers in learning the skills necessary for using technology to support constructivist learning environments. Research also shows that teachers become more effective in technology integration as long as they have adequate and proper training during their pre-service education, district-level and administrative supports and an opportunity to share their experiences with other teachers who use technology in their classrooms.

2.4.1: Teachers' Electronic Media Usage

The integration of information and communication technologies is a means to revitalizing teachers and students as well as helping to improve and develop the quality of education by providing curricular support in difficult subject areas. To achieve these objectives, teachers need to be involved in collaborative projects and development of intervention change strategies, which would include teaching partnerships with electronic media as a tool. Teachers' attitudes are major predictors of the use of new technologies in instructional settings. Likewise teachers' attitudes toward electronic media shape not only

their own electronic media experiences, but also the experiences of the students they teach. According to Zhao and Cziko (2001), three conditions are necessary for teachers to introduce electronic media into their classrooms: teachers should believe in the effectiveness of technology, teachers should believe that the use of technology will not cause any disturbances, and finally teachers should believe that they have control over technology, Demetriadis, Barbas, Molohides, Palaigeorgiou, Psillos, Vlahavas, Tsoukalas, and Pombortsis,. (2003), reached similar conclusions in their research and thus submitted that "Training efforts are generally welcomed by teachers but consistent support and extensive training is necessary in order for them to consider themselves able to integrate electronic media in their teaching methodologies". According to Rogers (1995), one of the major factors affecting people's attitudes toward a new technology is related to the features of the technology itself. Rogers pointed out five basic features of technology that affect its acceptance and subsequent adoption: relative advantage, compatibility, complexity, can be observed, and ability to be tried. Thus, a new technology will be increasingly diffused if potential adopters perceive that the innovation:

(1) Has an advantage over previous innovations;

(2) Is compatible with existing practices;

(3) Is not complex to understand and use;

(4) Shows observable results; and

(5) Can be experimented with on a limited basis before adoption.

Preparing students for real life in the technological and diverse world requires that teachers embed electronic media in significant learning experiences (Braun and Kraft, 1995). However, research studies show that most teachers do not make use of the potential of electronic media to contribute to the quality of learning environments, although they value this potential quite significantly (Smeets, 2005). Harris (2002), conducted case studies in three primary, and three secondary schools on Innovative Pedagogical practices, involving

ICT. Harris (2002:127-149), concludes that the benefits of electronic media will be gained "…when confident teachers are willing to explore new opportunities for changing their classroom practices by using ICT" As a consequence, the use of electronic media will not only enhance learning environments but also prepare the next generation for future lives and careers (Wheeler, 2001).

2.4.2: Role of Electronic Media in Teaching and Learning.

ICT in the form of electronic media in teaching has provided a new perspective and opportunity to motivate and engage teachers in professional development programs. ICT can contribute significantly to all the three components of professional development (Anderson and Glen, 2003).

• Firstly, it can bring world experiences into professional training by providing good teaching and learning materials, facilitating simulations and capturing and analyzing best practices of teaching.

• Secondly, ICT can open a world of flexible lifelong professional development program by offering training anytime and anywhere.

• Finally, ICT can break the professional isolation of teachers by connecting them in a virtual network and with valuable resources of teaching and learning materials.

Until teachers are given due recognition for the key role that they can play and are encouraged towards innovation, the transformation level of ICT integration will become a harder target to reach; therefore in order to create a successful program for capacity building and for teachers to become pioneers, inventors and shapers of the new culture of learning, professional development programs should consider the following elements:

- inspire teachers to invent
- focus on experiential learning
- conduct need assessments
- provide greater opportunities for feedback and reflections

- improve teacher competence in ICT integration, (Anderson and Glen, 2003).

Professional development refers to a variety of activities, both formal and informal, designed for the personal and professional growth of teachers with respect to pedagogy-technology integration. Professional development includes individual development, continuing education, in-service education or staff development, as well as, various professional developmental activities. It involves a wide variety of curricula to ensure that the teachers acquire and maintain the required competencies to face the diverse challenges of pedagogy-technology integration. It is concerned with the development of new insights into pedagogy and stimulates an on-going reflection into one's own practices.

Various professional development strategies exist for the successful implementation of pedagogy-technology integration. The strategies recognize the diversity within the region in terms of culture, languages and ethnicity. They encourage innovative practices. The strategies also focus on incorporating ICT development, education reforms and professional development of teachers in national policies and plans. National plans and programs require taking into account teachers' needs and concerns, particularly those related to their professional development. Commitment and support at various levels (facilitators, policy makers, communities and other stakeholders), are crucial in facilitating successful implementation of any national policy. Teachers may find it impossible to incorporate ICT into their work without support from peers, parents, leaders and other stakeholders. To bring this about, these community members may also need professional development along with the teachers. Countries that have initiated efforts to infuse ICT into teacher education have found the following professional development strategies to be helpful in successful technology integration (Anderson and Glen, 2003):

a) Professional development program on ICT integration places pedagogy over technology. The focus lies in teaching and learning rather than hardware and software alone. In other

words, it is not only about mastering ICT skills but also utilizing ICT to improve teaching and learning.

b) Professional development of teachers requires adequate access to ICT resources in the classroom. The better the access to ICT, the more likely it will be used for instructional purposes. This is a big challenge across the Asia-Pacific region because of the diversity of institutions and the difference in resources Anderson (2004).

c) A 'Just in Time' (JIT) approach to professional development is a model that works well. In this approach, professional development is provided to teachers on a "as-and-when-required" basis.

d) Capacity building is a sustained, continuing and lifelong process. It is not a one-time activity. Teachers need to update their knowledge and skills as the school curriculum and technology change. Individuals develop in stages and mature over time.

e) Professional development is a building process. Preferably it should start with what teachers do well in the classroom. Teachers can then gradually build their skills and knowledge in successive steps, towards pedagogy-technology integration.

f) Capacity building should be based on learning needs and skills of individuals. A detailed needs assessment is essential in order to identify gaps between the present status and the target to be achieved.

g) ICT has the potential to break the professional isolation from which many teachers suffer.

ICT provides a suitable means of connectivity with universities, peers, mentors, centers of excellence and the sources of teaching and learning materials. While developing professional development strategies, one requires taking into account the following guiding principles to promote pedagogy-ICT integration in its proper context:

- Infuse ICT into the entire teacher education program: pre-service, in-service, and both formal and informal teacher education.
- Integrate ICT in all activities of education: teaching, learning and administration.

- Empower teachers to develop knowledge, skills and positive attitudes actively towards integrating ICT in teaching and learning.
- Integrate ICT in all aspects of learning, and in all phases of the learning process.
- Integrate ICT for lifelong learning.
- Innovate ICT to embody and model the forms of pedagogy that teachers can use themselves in their classrooms.
- Apply hands-on, learner-centered principles in designing professional development program.
- Use ICT for empowering teachers to use a variety of learning strategies.
- Apply ICT to promote higher order thinking skills.
- Emphasize the professional development of teachers to reduce the digital divide within and among the member/participating countries.
- Use ICT to remove barriers between learners and facilitators.
- Provide an authentic learning environment for ICT integration.
- Encourage teachers to be mentors, tutors, guides and facilitators.
- Encourage self-directed learning independent of space and time (Anderson and Baskin, 2002).

2.4.3: Impact of Electronic media on Learning Process

Electronic media has impacted greatly on teaching, learning, research, and school management in a number of ways. It encompasses electronic technologies used for accessing, processing, gathering, manipulating and presenting or communicating information. It also encompasses software, hardware, and even the connectivity (Anderson and Baskin, 2002). When electronic media is employed in education, given the right condition, it can accelerate, enrich, and deepen basic skills in reading, writing, mathematics and the sciences, and can also motivate and engage students to learn as they become more independent and responsible for their learning. Furthermore, electronic media help to relate academics to the practices of

today's work. Information and communication technologies, especially network technologies have been found to encourage active learning, support innovative teaching, reduce the isolation of teachers, and encourage teachers and students to become active researchers and learners. They can also strengthen teaching through the provision of powerful tools to teachers (Gortmarker, 1990).

Other derivable benefits of electronic media integration in education are enumerated as follows. First, electronic media can assist in reducing teachers' workloads through its use for lesson preparation and worksheet, writing students' report and individual education plan, collating and analysing students' attainment information for target setting; recording and analysing attendance and disciplinary information, and maintaining link between the school and parent to ensure parental involvement in school activities (British Educational Communications and Technology Agency, BECTA, 2004). Second, it can be used in getting necessary instructional content of subjects, and collaboration can be ensured with teachers globally. In addition, teachers can also have up to date knowledge of a subject area.

Third, electronic media can assist in teachers' development, for instance, the Internet. In the context of teachers' development e-learning can be used for both initial and continuing development through courses, workshops, and other activities, formal and informal, where students and practicing teachers learn about integrating electronic media across curriculum to support learning. There are several global gateways of on-line resources to support teachers' development. These include: Electronic Media in Education, developed by UNESO, Paris; Education Network of Australia, developed by Education Institute, Adelaide; Institute of Education Technologies in Education, developed by UNESCO, Moscow; and so on. These portals provide opportunities for users to ask questions, post materials, and submit assignments (Anderson, 2004).

Also, electronic media will shift focus from teacher-centred to student-centred learning, where learners are active participants in the learning process, produce and share

knowledge, and participate and learn in collaboration with others. Thus, teachers become learning facilitators, collaborators, coaches, mentors, knowledge navigators, and co-learners and not dispensers of knowledge. In addition, electronic media can be multi-media for instructional delivery. Instructional content can be delivered in textual, audio, visual, and audio-visual forms. Thus, equity can be ensured for all categories of learners (disabled, geographically disadvantaged, those who cannot attend regular school).

Several studies have indicated the academic benefit of electronic media in education. Meta analyses have found consistently positive and moderately high achievement gains at all educational levels from computer mediation in school subjects, particularly mathematics. The computer-assisted instruction was found more effective in all educational levels and with lower achieving students (Kulik, 1983; Kulik and Cohen, 1983). Information and communication technologies significantly improve students' problem-solving skills, provide opportunities for student-constructed learning, increase students' collaboration on projects, increase mastery of vocational and workforce skills, increase the preparation of students for most careers and vocations, and improve confidence and attitude of students (Gortmarker, 1990). It must be underscored that the best predictors for achievement gain in the use of computer were prior positive attitudes towards the technology by teachers and students, consistent access to the technologies, and teacher training in the technology, among others (Maldonado, 2001).

From the foregoing, it can be deduced that electronic media is essential for contemporary educational development of any nation. Nigeria, as a nation, recognizes the pivotal roles of electronic media in the revitalization and the development of the country's education system. This recognition brought about the development of specific electronic media related policies so that the country's education system could husband the potentials of electronic media.

2.4.4 Strategies for ICT Integration in the Nigerian Schools

Using the necessary strategies, ICT can become a major tool for improving the quality of teaching, learning, and research in Nigeria Schools. Given the right condition the potentials of ICT that had been enumerated earlier can be tapped by school administrators, classroom teachers, curriculum developers, researchers, and so on, to improve the administration of the schools and provide sound basis for innovative education in Nigeria. The following initiatives could be taken to encourage ICT use in Nigerian Schools.

First, the Nigerian Policy for Information Technology (FRN, 2001), should be reviewed to give specific sectored allowance for education. The document should not only be market driven in orientation but should also give detailed direction on the Integration of ICTs in instruction. In this direction, relevant stakeholders should be part of the process to review the document. Furthermore, ICT policy for education should be developed at levels for Nigerian education. Thus, each state, local government and school administration should evolve ICT policies as done in advanced countries.

Secondly, teachers in Nigerian schools should be trained not only to be competent in the use of ICT but capable in their use and integration for instructional purposes. Capable teachers, in this context, refers to teachers who know how to learn, are creative, have a high degree of self efficacy, can apply competencies in novel as well as familiar situations, and work well with others (Stephenson and Weil, 1993). Since lack of teacher computer skill is the single largest barrier to ICT use in education, initial teacher training in Nigerian schools should incorporate necessary ICT training, and staff development should be developed for serving teachers. Compulsory IC training should be enforced for all teachers, that is, ICT components should become an integral part of teacher education program for pre-service teachers at the colleges of education, universities, and other teacher training institutes, and also for serving teachers. In addition, regular workshops and seminars should be organized

for serving teachers to keep them abreast of developments in the field of ICT as they relate to education.

Thirdly, provision of infrastructure needed for the implementation of ICT in schools should be made and this has several dimensions. In the first instance, schools should be equipped with necessary ICTs facilities as envisaged in the national IT policy. For a start, shared ICT parks can be established for schools within a defined location to use on rotationally scheduled basis. The NITDA initiative in mobile computer laboratory can also be explored. Teachers at all levels should be assisted to acquire personal computer through loans as obtained in other countries, such teachers should have lap top or palm top computers which can be used at various setting (home, offices, classroom, workshops, etc) as was done in the British government teacher computer acquisition program which led to increased use of ICTs in British schools (Scrimshaw, 2004).

Fourthly, attempts should be made to develop a crop of school leadership who are committed to ICTs implementation in Nigerian schools. Such leaders will lead others in embracing ICT. School administrators/heads should be part of the people developing ICT issue through projects and initiatives. These leaders will be able to give leadership through knowledge from the multiple training and initiatives. In achieving this, NITDA and the Digital Bridge Institute should develop appropriate programs for school administrators.

Fifth, communities, alumni associations, and similar bodies should be involved in developing ICTs policies at school level and be involved in the implementation. Working with community will lead to development of a more authentic and conceptualized approach to learning (Scrimshaw, 2004). The community and others can also be involved in the provision of ICTs infrastructure in schools. Locally based training can also be provided for teachers and students.

Sixth, at the initial stage government could evolve community based ICT, centres with adequate facilities for use of a group of schools. Such centres should have Internet

access. The facilities can be opened to the community at a prize to generate fund for sustaining such centres.

Seventh, there is a need for a national agency to be in-charge of ICTs implementation in Nigerian schools. An agency such as the Nigerian Agency for Information Technology in Education could conduct research into ICTs issues in schools, develop curriculum on ICT for various levels of education, encourage the development of local content software, monitor ICTs implementation at school levels, regulate ICTs specialized institutions, assist states, local government, and schools in developing ICT policy for education, advice government on ICT and education, and so on. For instance, BECTA takes care of ICT issues as they relate to education in Britain.

Eight, teacher-training institutions in Nigeria must develop programs on ICT in education, apart from degrees in computer science. Specialists in ICT in education can thus be trained at various levels. They will be promoters of ICT use in schools. In addition, teacher-training institutions should encourage further research on ICT in Nigerian Schools so as to identify the present status, that is, the knowledge map on ICT in Nigerian schools, the problems, and other sundry issues.

It must be underscored that research should be conducted nationally on the issue of ICT in schools. Such national researches are regularly conducted in advanced countries to gauge the progress in ICT application in the field of education. Government, non-governmental agencies and organisations, professional organisations in the field of education, educational agencies and educational research institutes, institutes of education, among others should conduct research on needs, infrastructure, access, digital divide (gender, geographical, social), staff development, barriers to ICT implementation, and so on. Such studies can serve as precursor for adequate planning and they can also serve as evaluation for ICT policy implementation within the Nigerian school system.

2.5: Electronic Media in Teaching Social Studies

Many researchers and authorities have commented immensely on the use of instructional materials in Social Studies instructions and many other educational processes, that the use cannot be over-emphasized. Abujaber (1987), in Ayoti, (2013), assert that, the importance of instructional materials for both teacher and students cannot be over emphasized. In Social Studies, the use of instructional materials is essential to support learning because Social Studies are concerned about natural and social phenomenal which cannot be easily expressed without the support of graphics maps, video, pictures etc.

According to Cursor (1997), in Hannafin and Savenye (1993), using instructional materials in Social Studies classroom widens the channels of communication between teachers and their students. He further maintains that the instructional materials allow the growth of specific learning abilities and enhance intellectual skills and major skills-the use of charts and models enables the teacher to present and illustrate many physical phenomena and issues easily and at the same time, allows learners to focus attention on the characteristic of objects.

Another work by Bozimo (2002), submits that "the importance of instructional materials lies on the fact that abstract ideas, data or information expressed in printed pages become tangible and concrete when they are translated or reflected in forms of instructional materials and resource. She further maintains that, the inter disciplinary or integrated nature of Social Studies demands that well thought-out materials be used in the classroom instruction to enable the learners comprehend the interrelatedness of knowledge and unity of various disciplines making up the social sciences and humanities. The materials will also be such that can unambiguously reveal the dynamic nature of man, his activities, decisions and problems.

Another researcher, Adeyanju (2003), posits that learning can be reinforced with learning aids of different variety because they stimulate, motivate, as well as arrest learners' attention for a while during the instructional process. He also claims that learning aids

reduce-the talk and chalk method while some other teachers claim that whenever they taught with some of the instructional materials, their students get more stimulated because the learning aid help them (students) to become more attentive. In addition, students positive attitude generate more interest for the lesson they teach as a result students participate better in class activity

There is need to realize that, the application of instructional materials in the Social Studies classroom and any other instructional setting improves teaching-learning and allows the teachers and students to interact as human beings in the environment they find themselves, for their own purpose. More specifically, instructional materials are used to concretize conceptual abstraction in Social Studies since the focal point of Social Studies is to instill in students practical skills that they will use to explore solution to their situational problems within the environment they live in. In concrete terms, electronic media as instructional media has enhanced teaching and learning through its dynamic, interactive, and engaging content; it has provided real opportunities for individualized instruction. Information and communication technology has the potential to accelerate, enrich, and deepen skills; motivate and engage students in learning; help to relate school experiences to work practices; help to create economic viability for tomorrow's workers; contribute to radical changes in school; strengthen teaching, and provide opportunities for connection between the school and the world. Information communication technology can make the school more efficient and productive, thereby engendering a variety of tools to enhance and facilitate teacher's professional activities (Yusuf, 2005a).

Generally, the importance and the usefulness of instructional materials in Social Studies teaching are explained under the following points:

(i) Stimulation of interest
(ii) Concretize abstract issues or topics in Social Studies
(iii) Creating effective communication.
(iv) Use for mass instruction and taking care of wide audience.

(v) Providing meaning and useful sources of information to teachers and learners.

(vi) Helping in developing a continuity of reasoning and coherence of thought.

(vii) It saves time and reduces verbalism or repetition of word.

(viii) It is used to improve teaching methods

(ix) To promote closer relationship between the community and the school (Anyawu, 2003).

(i) Stimulation of Students' Interest

In teaching-learning process, there is the need to generate, arouse, motivate and maintain students' interest. If the learners' interest is build properly, learning can take place effectively. Instructional materials have the potentials, if effectively used, for regulating the pace of information flow among different class of learners under the same classroom. It addresses individual differences. Students are aroused with the nature and the beautiful appearance of the materials which will make them to settle down and learn what the teacher had prepared to teach (Anyawu, 2003).

Also, Nnyejmesi (1981), cited by Anyawu (2003), agreed to the above and based on further investigations submitted that pictures-stimulates and help further study, help students to take active interest in the topic presented; and also learners admitted that they find pictures interesting and that pictures gave them clear ideas of the topic. This resulted in further activities and comprehension of the verbal materials.

(ii) Concretize Abstract Issues or Topics in Social Studies.

The use of instructional materials in Social Studies makes learning real, practical and more permanent to the learners. It makes conceptual abstraction in Social Studies more meaningful. Nnyejmesi (1981), in Anyawu (2003), states that; instructional materials are valuable assets in learning situations because they make lessons practical and realistic. They are the pivots on which the wheels of the teaching-learning process rotate. Since it concretizes issues, it then facilitates revision (recall) activities and provide very unique opportunities for self and group evaluation for the teacher and the students alike. It captures

the student intellect and eliminates boredom; makes the work easier, neater, and boosting for clarity and more appeal.

(iii) Creating of Effective Communication

Instructional materials if properly used allow for a flow and transmission of ideas from the teacher to the students and likewise from the students to the teacher or from one group to the other. The learners will be able to see, touch, spell what is been talked about by the teacher and be curious to ask questions that would be very helpful for effective evaluation (formative) of the teacher and instructions in Social Studies.

(iv) Use for Mass Instruction and Taking Care of a Wide Audience

With the use of projected and electronic materials such as television, overhead transparencies and computer especially, instructions are packaged in a very broad manner which takes care of a wide range of learners in a classroom with less stress and time. Many students will be able to learn faster as the package takes care of various learners' interest at the same time. A teacher can handle a very large class conveniently as the teacher is guiding and displaying the instructional materials on the wall with the use of projector.

(v) Providing Meaning and Useful Sources of Information to Teachers and Learners:

Teachers are up to date and able to provide for reliable and useful information for the learners with the use of instructional materials, it can effectively be used to ultimate, shorten information from various sources for the purpose of comparison and contrasting ideas. It helps in perception and retention of information or knowledge in Social Studies learners.

(vi) It Helps in Developing a Continuity of Reasoning and Coherence of Thought

Social Studies discipline, is an integrated course of study that incorporates ideas from different disciplines. The use of instructional materials helps the learners on providing integrated experiences, which may vary from disciplines to discipline and this makes the end product of education more productive. Since students are exposed to the real nature of those

concepts or body of knowledge they tend to analyze and synthesize those body of knowledge for the proper application in their daily lives.

(vii) It saves Time and Reduces Verbalism or Repletion of Words

In their research, Emma and Ajayi (2006), assert that "figuratively speaking, instructional materials enable the teacher to be in more than one place at a time and to address several issues at a time". For example, a video material could be on while the teacher moves around to explain to individual student's social studies contents in response to requests based on individual differences on problems. While the video materials continue to provide details of the assignment the teacher also becomes part of the listening audience. It reduces verbalism or repetition of world by the teacher without knowing their meaning and also adds Varity in reinforcing verbal messages by providing a multi-media approach. Nnyejmesi (1981), in Anyawu (2003), asserts that instructional materials are indispensable factor in teaching learning process. This is because words or verbalization has been found to be inadequate for effective teaching. Instructional materials, frankly speaking, reduce the level at which the teacher should strives himself in the process of talking; rather he guides the process of the instructions. And as a result saves his time in the process of teaching.

(viii) It is used to Improve Teaching Methods

The teachers of Social Studies perfect not only their methods of teaching but also perfect contents and situations (activities) to be taught. With the use of instructional materials, the teacher is able to edit, try and retry, alter and delete his activities to fit the standard of the students and also to effectively address the curriculum objectives. Instructional materials, if properly utilized help in gaining direct contact with the realities of the learners both social and physical environments.

(ix) To Promote closer relations between the Community and School

The purpose of using instructional materials in Social Studies is for the students to internalize the situational issues happening around them. The students will be able to identify

crucial issues and address these issues if properly inculcated with the use of instructional materials.

Walsh (1967), in Chuba (2000), posited three importance of teaching aids in Social Studies class as easing off teachers teaching task, satisfying different learning patterns and in-building of special appeal by teaching aid manufactures, which help to motivate or captivate interests of the learner. Almost in a similar note, Ikwumelu (1992), in Chuba (2000), outlined the following points as the reasons why teachers must apply teaching aids in the Social Studies classrooms: teaching aids helps to concretize abstract issues and topics; they motivate pupils interests in the topic being discussed, they develop continuity of reasoning and coherence of thought which augurs well with the interdisciplinary nature of Social Studies. Teaching aids save time and as things presented are almost self explanatory, energy is saved in too much talking and writing and they help to appeal to pupils interests and this is because, they tend to appeal to students difficulties as well as take care of students' differences.

Scheffler and Logan (1999), emphasize that integrating technology not only involves the attainment of computer skills but also consists of a process in which learners try, fail, access, evaluate, analyze and apply meaningful tasks including but not limited to researching, analyzing data, applying and representing knowledge, communication and collaborating. Thus, the integration of technology into education means using it as a tool to teach subject matter, and to promote problem-solving and higher-order thinking skills. It is neither computer literacy nor computer awareness. It means using the computer where it is the best medium to support the learning goal. It requires changes in a school. The entire school community of students, parents, teachers and administrators has to accept that computers are a part of everyday school life. Becker (1994), notes that a social network of computer-using teachers and organizational support from both school and district resources are important factors that contribute to successful technology integration.

Hadley and Sheingold (1993), suggest that technology is most valuable to teaching and learning once teachers integrate it as a tool into everyday classroom practice and into subject-matter curricula. It is only through integrated practices that they can realize the hopeful and idealistic claims for technology (Collins, 1991). This requires readily and flexibly incorporating technologies into their everyday practice in relation to social studies matter they teach. Incorporating technology effectively involves: (a) Engaging students in active learning; (b) Relying less on whole-group instruction; and (c) Encouraging more independent and self-motivated learning (Hadley & Sheingold, 1993).

Collins (1991:28), argues against the integration of technology by schools where that integration is un-criticized and unquestioned, and where schools are basically jumping on a very costly bandwagon. However, she concedes that where their use is well planned, computers can "ground education in projects that have intrinsic meaning, while still teaching critical skills of symbolic analysis and a core base of integrated knowledge". Williams and Williams (1997: 91-104), note that effective technology use should incorporate a variety of applications that focus on problem-solving and helps in the development of creativity, adaptability and collaborative problem-solving skills.

Much discussion about technology and education has focused on the question of how technology facilitates teaching and learning. Honey and Moeller (1990), state that the most important element affecting how and whether teachers use technology in their teaching is their pedagogical beliefs on learning and instruction. They examined teachers` perceptions of how and why they do or do not use technology in their teaching and concluded that high-tech teachers engaged their students in collaboration, project-oriented work and activities, inquiry and discovery-based learning. They suggested a transition from traditional to constructivist paradigm in both teachers` beliefs and educational system in order to benefit from technology as much as possible. Hannafin and Freeman (1995), agreed that teachers' beliefs about knowledge acquisition and effective uses of technology are correlated with the ways they use

technology in their classrooms. The teachers' view of learning, then, could be another factor to successful technology integration.

2.6: Sources and Usage of Electronic Resources

Electronic resources have many uses. Accordingly Alan, Betty, Michael, Cynthia, Charles, and Eric (1999), suggested that textbooks and monographs have little to fear from on-line competition. Few students or faculty will submit to reading long passages of text on a computer screen. But many classrooms can benefit from electronic resources in at least two areas: supplementary readings and primary sources. Even the best published readers or photocopied packets tend to dampen the thrill of discovery because they have been preselected and packaged for a particular purpose. Electronic sources, whether on CD-ROM or the Web, can significantly open up the range of materials accessible to students.

There are a wide variety of electronic resources that can be useful for the classroom. Among the most popular have been CD-ROM document collections such as Chaucer: Life & Times; Pennsylvania Gazette, 1728-1783; and Presidential Papers: Washington-Clinton. Textbook publishers are increasingly providing electronic study guides, map exercises, sample presentation slides, and computerized test banks on CD-ROM, floppy disks, or even on the Web. Some schools are producing, or arranging access to, large collections of digital materials.

The most extensive, if still not fully developed, source for electronic resources is the World Wide Web. Many web sites can deliver primary documents, secondary literature, sound, and images from a wide variety of sources. Students who explore web sites related to a course can bring compelling evidence and arguments back to the class. Publishers are building companion web sites around their textbooks, and large international projects have been launched to provide on-line sources for standard humanities and social science survey courses. Finally, libraries and scholars are making scanned materials accessible over the

Web, although the copyright implications of this practice require close attention. Alan et. al., (1999), suggested the following steps in using electronic media:

- Administration*:* The routine administration of courses (advertising a class, providing copies of the syllabus, assigning discussion sections, and getting out course news), can be more efficiently handled with a course home page, electronic discussion groups, and e-mail lists. These tools can also dramatically improve the continuity and the community aspects of courses, helping students to engage with and learn from each other and even from people outside the course.
- Readings sources*:* The Web and CD-ROMs provide a wider variety of secondary and primary sources (including visual and audio sources), than has previously been available. With guidance, students can gain access to materials that were once accessible only to experts because they were too cumbersome to reproduce for classroom use or too expensive for students to purchase. By taking their own paths through these sources, students can bring their own evidence and arguments into lectures and discussion sections, as well as write on a wider range of research topics.
- Papers presentations*:* Rather than performing assignments and taking exams from the teacher alone, students can perform more independent exercises in publishing, exhibit building, or assembling and presenting teaching units and other materials for their peers. A web archive of several terms' work can make the course itself an ongoing and collaborative intellectual construction.
- Lectures*:* A computer with presentation software can provide a single tool for augmenting lectures with outlines, slides, statistical charts and tables, images, music, and even video clips. In addition to printing them as handouts, the teacher can save in-class presentations in a web-compatible format for later review and discussion.
- Discussion*:* Electronic discussion tools such as e-mail, conferencing software, and on-line chat services can seed discussion questions before the class meets, draw out shy students,

and follow up on discussions or questions on the reading between classes. For courses without face-to-face discussion sections, these tools can bring the course to life over great distances and help overcome scheduling difficulties.

2.7: How to Use Electronic Resources

In both cases, these relatively new forms of material require some special handling. One should approach selecting electronic sources according to Alan et. al., (1999), for the course with the following guidelines in mind:

- Ensuring that all electronic assignments contribute to the objectives of the course. The new materials should pass the same relevance test as traditional material.
- Personally evaluating the scholarly quality of electronic sources. Although linking to electronic sources might be free, one substandard source can lower the credibility of the course.
- Using the appropriate medium and trying to find out if the materials could be more easily or effectively used in a more traditional form? One should try to use the Web for things that it can do particularly well: displaying multimedia material, hyper linking to other sources, providing interactive experiences, or improving access to otherwise cumbersome or distant materials. As on-line archives begin providing access to recordings and radio and television programs, its possible value to teachers will increase even further.
- When dealing with massive collections of primary documents, one should make the task of using them more manageable by discussing ahead of time the particular questions the collection might help answer. This is followed by dividing the class into groups, each of which will explore the archive with a particular question in mind. Short review papers, web-page postings, or in-class presentations can enable each group to share small numbers of documents, images, and other artifacts that address the question or theme they have chosen.

- Reinforcing traditional research skills. Using on-line information requires at least as much skill and discipline as using traditional sources. Just because students can "cut and paste" from on-line sources, the process of researching and writing is not fundamentally different from that for a project that uses more traditional sources. Students should be encouraged to take the same detailed notes and to follow the same strict citation procedures they use for conventional printed sources.
- Mixing traditional and electronic sources. This requires students to consult traditional printed and microform source material as well as electronic resources. Most valuable sources will not be digitized any time soon, if ever, so students' research should include at least as many traditional sources as electronic ones. Students wedded to the Internet sometimes tend to assume that they need never use a traditional library; some act at times as if they think information that is not on the Web does not exist. Teachers need to structure assignments in a way that does not sever your students' ties to the most important sources of scholarly material.
- Cautioning students to be especially critical readers of on-line sources. Here the teacher explains the Web's fluid (or nonexistent) editorial standards and the need to determine the standards, origin, and scholarly discipline that went into the creation of each on-line source. Virtually anyone can create a web site, and there is no review process to test sites for accuracy or reliability unless the creator of the site initiates one. To avoid the problems such lax standards can cause, the teacher should heavily emphasize the on-line offerings of established libraries, archives, and universities.
- To ensure that students become critical consumers of on-line material, teachers should consider having the students complete a quick questionnaire after reading the first electronic resource of the term. This would be followed by asking them to identify the author of the material, give the address (URL) for the site, and comment on the scholarly methods and reputation of the sponsoring organization or individual. They can be made to

try to discover how long a site has been in existence and how long the reference will remain on-line. Will more material be added or corrections made? How should they cite this material in their papers, and can they be sure the material will still be at that location? A short discussion of the answers in class will counteract many of the sources of confusion and disappointment.

2.8: Constrains to the Use of Electronic Media in Teaching and Learning Social Studies

Limitations of infrastructure and finances effectively bar some countries from participating in this electronic revolution. In other countries, education and government leaders have legitimate concerns about the cost, the efficacy, and the feasibility of using communication technologies in their education systems. More specifically, developing countries according to Nwachukwu (2014) face the following problems:

1. Lack of Computers

Desktop and Lap-top are still very expensive in Nigeria such that more than 85% of students are unable to acquire one for their academic utilization. There are still large percentages of students who are still unable to purchase computers for use. Currently new computers are as from ₦150, 000.00 upwards. This assertion is in line with Honey and Moeller (1990), stated that information and communication technology has immense potential to motivate and engage students in learning.

2. Lack of Qualified Teachers to Teach With Electronic Media in Schools

Lack of knowledge on the part of teachers on the usage of electronic media to teach students poses a serious problem to the teaching and learning using electronic media in Nigerian colleges of education. Hence he stated that teachers might find it difficult to deliver the appropriate education and training to their students. This is because the more a teacher is able to utilize the available electronic media to teach his students, the more he will impact on these students.

3. Lack of Electricity

Nigeria being a developing nation cannot boast of twenty four hours electricity supply to its citizens. The institutions are directly connected to national power lines, yet no electricity or power is supplied to the institutions. It is on a sad note that some of the schools and departments of the institutions cannot afford a generating set such that can power the entire computers and other electronic media for teaching and learning. Consequently, both the teachers and students are handicapped and may not be able to offer lesson using electronic media.

4. Lack of Internet or Slow Connectivity

Some of the Nigerian colleges of education are not able to connect to the world wide web, even if the colleges are connected, departments where students are to be taught information and communication technology are not connected due to the high costs involved in the connection.

5. Burglary

Electronic media are still very expensive in Nigeria. This makes them a target for thieves who steal them and always have ready buyers at a second hand cheap rate. This automatically increases the expenditure of the colleges by way of fortifying security measure and by providing extra burglary proof to protect the media room. These expenses including the large room the computers are to be kept made some colleges stay from purchasing electronic media.

6. Lack of Finance

Lack of finance and distributive capacity are some of the major dilemma utilization of electronic media is faced with. Nigeria has not been able to provide resources to keep up with this demand. This brings about compromised quality of education. Many Nigerian colleges

are faced with predicament of educational expansion that corresponds with economic development.

Other problems are:

a. Technical Know-how: Electronic media is not easy to handle unless one acquires the skills to do that which is lacking among Social Studies teachers. This situation renders the electronic media (if available) almost useless. Often one sees the Social Studies teacher bringing some specialists in the operation of electronic media to the class because he/she cannot handle it. Unfortunately, the operator might not know exactly how to present the experience the teacher wants to bring to the students and the impact which the media were to make would be reduced.

b. Lack of expert technicians (repairers): Whenever electronic media develop fault, the technician to repair it are not easily found. Sometimes, one has to take it (electronic media), to another state or even another country. Sometimes, it is not that the technicians are not found but the parts that are faulty are not available and one must send for them in another foreign country. When the situation reaches this level, it usually takes a very long time to repair it and at times the electronic media ends up condemned as a result of scarcity of spare parts.

2.9: Empirical studies

Beyerbach, Walsh, and Vannatta (2001:113-135), conducted a study to investigate teachers' use of technology infusion and its role in student learning in the USA. This was a two-year evaluation study of a pre-service teacher technology infusion project in which teams of teacher educators and K-12 teachers collaborated to infuse technology in their respective teaching contexts, and to create links between these contexts. The results suggest that technology infusion to enhance teaching is a multifaceted process that takes time, support, and collaboration. A team approach, with practitioners from the K-12 and arts, sciences and education faculty, and undergraduate and graduate students offered a fruitful model for

infusing technology both into teacher education and the schools where the students study and learn by doing. After participating in the project, "pre-service teachers changed their views of technology infusion from thinking that they would teach and learn about technology to thinking they would use technology to support student learning" (Beyerbach, Walsh, and Vannatta, 2001:163). The study by Bayerbach et al is related to the present work in applying electronic media in teacher education, both teachers and learners were the population in both. The work however differed in respect of methodology and time frame for the study.

The Gordon University Aberdeen (2004), in a study conducted in Scotland on teachers' ICT skills and knowledge need reported that the use of ICT was relatively low and is focused on a fairly narrow range of ICT. Word processing was the predominant use made of ICT in primary and secondary schools. There was some use of externally produced educational software in both sectors and secondary teachers tend to use a broader range of generic packages such as spreadsheets and desktop publishing (DTP), than did primary teachers. There was very little use of the Internet and World Wide Wave or e-mail by either primary or secondary teachers, despite the fact that the majority of secondary schools had access to the Internet. Resources such as video conferencing and network computer conferencing were rarely used. The research is similar to the present one in terms of interest in the application of electronic media in the teaching and learning process. While the former took place in Scotland, the present is is in Nigeria and specifically on teacher education.

Oduwole (2004), carried out a research to examine the utilization of Internet facilities and its impact on the research outputs of agricultural scientist at the University of Agriculture, Abeokuta, Nigeria during the 2001/2002 academic session. Analysis of the responses showed that about half (54 per cent), of the agricultural researchers at the university used the yahoo search engine and that they spent an average one hour per day browsing the Internet. The study also revealed that respondents used the Internet to find

research materials such as journals and conference proceedings, followed by sending and receiving of electronic mails (e-mail). The study concludes that the use of the Internet for academic research by Agricultural Scientist had improved their research output. Aduwole's study is similar to the present study as they both deal with utilization of electronic media in academic set up. They also deal with student in higher institutions of learning. However, while Aduwole's study dwelled solely on the Internet, the current study extended to more varieties of electronic media that could be applied in teaching social studies.

UNESCO, (2004), in a study of primary school teachers that focused on pedagogy using ICT, showed that the most successful teachers were those who used examples and counter examples and involved students in explaining and modeling in the class. Teachers who favoured ICT were likely to have well-developed ICT skills and to see ICT as an important tool for learning and instruction. They were also likely to value collaborative working, inquiry and decision making by students. Teachers' pedagogical approaches are in turn affected by a number of key factors. First, they are affected by knowledge about their own subject. There is a clear distinction between teachers who chose ICT resources to fit within a particular topic and those who chose resources merely to present pupils' work in a new way, without any direct application to the topic. The evidence showed that when teachers used their knowledge in both social studies and also how students understood social studies with their use of ICT had a more direct effect on students' attainment. The study by UNESCO is relevant to the current study because it provides an insight on the level of ICT utilization by primary school teachers. The point of difference between the study by UNESCO and the current study lies in the fact that while that of UNESCO dealt only with teachers, the current study involved both teachers and students, both studies also suggested that application of electronic media impacts positively on teaching.

Cox, (1999) reported findings of a small project funded by the Teacher Training Agency and Oracle through the Miranda Net project, set up to investigate the factors which have contributed to the continuing use of ICT by experienced ICT and ICT teachers in their teaching. Evidence has been collected through a literature search, teacher questionnaires, teacher's reports and interviews. The factors which were found to be most important to these teachers in their teaching were: making the lessons more interesting, easier, more fun for them and their pupils, more diverse, more motivating for the pupils and more enjoyable. The study further revealed that secondary teachers use ICT primarily to support classroom practice; post secondary teachers use it as much or more for professional development and personal use as in the classroom. Teachers are using ICT throughout the curriculum, but use and attitude vary in secondary schools between subject areas. Mathematics and science teachers use ICT relatively little while, amongst non-computing teachers, ICT are used mostly by teachers of business and management subjects. Cox's study is related to the present study because it investigated the factors that contributed to the continuing use of ICT facilities in teaching which is an aspect of the present study. The two studies also have teachers as their population. However, while Cox's study dealt solely with factors that contributed to the continuing use of ICT by Mathematics teachers, the present study involved Social Studies Lecturers and the impact of availability of electronic media towards enhancing teacher education.

Mustafa (2005), in a research titled, Implications of Learning Theories for Effective Technology Integration and Pre-service Teacher Training: A Critical Literature Review in Nigeria, examined different literature on the topic with the aim of addressing the issue of whether a constructivist and collaborative learning environment using problem-solving activities and authentic technology integration cases could help pre-service teachers learn how to use technologies as supporting tools to enhance their teaching and students` learning. The methods used were two broad categories of studies. The first category included studies

that had effective technology integration to improve learning as the primary concern of the research. These studies were generally concerned with the theoretical framework of technology use. The second category reviewed the studies that looked at the training programs for pre-service teachers. The research included the need for teachers and teacher trainers to assume new roles, acquire new skills, and adopt new teaching approaches as they integrated technology into their teaching. The methodology used was a literary review, hence, comparison of the different perceptions was made by the researcher, and his findings are that, technology integration representing learning from technology (behaviourist perspective), is not the most effective way to improve learning, although it helps learners to perform the lower level sub-skills automatically. On the other hand, constructivist-learning environments representing learning with technology, which encourages learners to actively process and organize information by making internal cognitive connections, can well provide the theoretical framework for the effective technology integration. The similarities of the research and the current one are that both researches are on electronic media and how it impacts on teaching and learning. The first work surveyed works on electronic media which the present research also consulted. The differences however are in the area of coverage, while the first researcher focused on a relationship in Turkey, the current research is in North-west Nigeria.

Chinedu, Nwanna-Nzewunwa and Michael (2005), worked on electronic media as instructional materials in Social and Business Studies and as instruments of social change: empirical evidence from Nigeria. The study evaluated the roles of electronic media (radio, computers, television, projectors, videos, internet facilities and telecommunication facilities), in teaching effectiveness and social change from the perspectives of a developing nation, Nigeria. The study sought to determine:

- Extent of exposure of teachers to electronic media as instructional materials;

- The use of electronic media in instructions in social and business studies in respondents' areas;
- Extent of their usefulness in teaching social and business studies;
- Factors determining the usefulness of electronic media;
- Usefulness of instructional materials in teaching social, management, and business studies;
- Problems associated with electronic media as instructional materials; and
- Achievement of social change and development in respondents' areas (p.63).

The study used survey research design and used a questionnaire for data collection. The study sampled a total of 600 teachers teaching in various schools that were located in the Niger Delta Region of Nigeria. The study found that, radio is the most potent instructional material in achieving teaching efficiency and generating desired social change. Computers, projectors, and internet facilities were found to have inherent capabilities of aiding teaching effectiveness that could lead to the attainment of desired social change. The study is related to the current study because it evaluated the impact of electronic media on teaching and learning in Social Studies and Business Education. Though the research has targeted various schools, the similarity with the current research is that they all focused on teachers and students. But while the research under review adopted quasi-experimental, the current research adopted survey method. Equally, the research under review is in the Niger Delta region while the current research is on North West Goe-political zone of Nigeria.

Ashwini and Ramesh (2006), conducted a survey of the electronic media utilization by distance learners of Indian open universities. The objectives of the study were to obtain the feedback of learners in respect of their accessibility to various media; media use profile, views on usefulness of media, impact of media on their learning activities, problem faced in the use of media and suggestions for improving the utilization of media in distance education. The population of the study comprised of 665 learners and a descriptive sample survey

method was adopted. The study revealed that most of the learners were not satisfied with the time allotted for media use and many learners were also not sure of the availability of necessary infrastructures at the study centers. The study is similar to the present research by focusing on electronic media utilization by learners and lecturers as well. The difference between Ashwini and Ramesh's (2006), study and this study is that while their study focused on University students, the current focused on colleges of education students and lecturers.

Gulbahar and Guven (2008), conducted a research titled, A Survey on ICT Usage and the Perceptions of Social Studies Teachers in Turkey with the following objectives: to explore ICT usage, factors that support the use, barriers that hinder the use, and self-perceptions of efficacy and level of expertise. Their population consisted of 326 Social Studies teachers in grades 4 and 5 levels in the primary schools. The results showed that although teachers were willing to use ICT resources and were aware of the existing potentials, they were facing problems in relation to accessibility to ICT resources and lack of in-service training opportunities. The study and the current research are both on availability and usage of electronic media in teaching Social Studies; the research like this one used the survey research design. However, while the research was conducted in Turkey, this study was in North-west Nigeria. Social Studies used by the present researcher were Lecturers and NCE students in colleges of education, while the reported research used primary school teachers and pupils.

Hennessy, Harrison and Wamakote (2010), studied teachers' use of Information and Communication Technology (ICT) in primary and secondary schools in Sub-Saharan Africa, with particular emphasis on improving the quality of subject teaching and learning. The research focused on the internal factors of influence on teachers' use, or lack of use, of technology in the classroom. The study was to determine the perceptions and beliefs of teachers about ICT and their motivating effects, technological literacy and confidence levels, pedagogical expertise related to

technology use, and the role of teacher education. Factors were discussed in the light of significant infrastructure and other external issues. The method adopted in conducting the research was descriptive design. Research findings showed that new digital technologies have the potential to revolutionize the quality of subject teaching and learning when carefully integrated into the classroom. However, a primary barrier to teachers readiness and confidence in using ICT, despite general enthusiasm and belief in benefits for learners, is their lack of relevant preparation, either initially or in-service. The research revealed that, until recently, training opportunities have remained limited in availability and inconsistent in quality. The research applied a synthesis of literature on the area of concern; primary schools were used as population of the study, and it covered sub Saharan Africa. While the current research adopted descriptive research method, and concerned Colleges of Education in North West Nigeria.

Duru and Ozoji (2011), investigated the utilization of ICT and its applications in teaching computer studies in secondary schools in Owerri educational zone. The objective of the study were to investigate the extent of utilization of (ICT), electronic media devices, in teaching computer studies in secondary schools in general and specifically to find out the extent to which teachers utilize internet in teaching computer studies, the problems associated with utilizing information and communications technology in teaching and to proffer solutions to these problems. The researchers adopted survey design and used questionnaire for gathering relevant information. The population consisted of all the secondary schools in Owerri municipal, from which sample of 150 students and 90 teachers were selected. Mean score and standard deviation statistical method was used to compute the data. Part of the findings revealed that, computer teachers in secondary schools did not utilize computer hard ware and internet applications in lessons; that teachers lacked the required skills to operate these resources; secondary schools lack the necessary infrastructures required for utilization of the

resources and applications. The study is similar to the current study in that both focused on the utilization of electronic media. Both studies adopted the survey research design. The differences are however in the nature of population; while the research under review centred on primary schools pupils and teachers, and the current research focused on colleges of education students and lecturers.

Ebeneza and Oluchi (2011), in a research titled: Availability of ICT in teaching and learning of English language in secondary schools in Okigwe educational zone, Imo state, desired to:

a. Identify the ICT facilities that are available in the senior secondary schools;
b. Identify the usability level of ICT facilities by English teachers; and
c. Ascertain English language teachers ICT skills acquisition.

The methodology used was descriptive survey, and data collection instruments used was questionnaires for teachers and students. The result of the findings showed that, the ICT facilities found in the schools were very few, except for hand-sets. The study also revealed that the available ICT facilities are to a great extent used by the teachers in the schools. The study also confirmed that teachers acquire the skills of manipulating the ICT equipments but do not exhibit the skills in classroom pedagogy.

The research is similar to the present research in the area of usage and availability of electronic media in teaching and learning situations. The target population is also teachers. The methodology and instruments are similar. The difference however is in the area of coverage, while the researchers focused on secondary schools in Okigwe education zone, in Imo state, the present study is covering Colleges of Education in the North Western part of the country.

What the results of these studies all point to is a need to shift funding and research priorities from simply providing access to technology in schools to making sure that teachers are adequately trained and supported in both the technology skills and the pedagogical strategies to integrate technology into their teaching. The findings demonstrate a need for teachers, and teacher trainers, to assume new roles, acquire new skills, and adopt new teaching approaches as they integrate technology into their teaching. The evidence show that although educational reforms focused on the restructuring of education, incorporating constructivist and cognitive processing view of learning and integrating uses of technology in the school curriculum, most pre-service teachers have not had adequate training in the use of technology within the constructivist learning environment.

Muideen (2011), also undertook a research titled, An assessment of student's usage and availability of ICT facilities in colleges of education: problems and prospects. The study assessed the students' usage and availability of ICT facilities in colleges of education, the population of the study comprised of 250 respondents. The research methodology was adopted descriptive survey, and the instrument used was questionnaire. The study found that, students made use of the available facilities of the college; ICT facilities were widely used in instruction process. Students had access to ICT facilities and that students encountered problems of electricity supply.

The study is similar to the present by focusing on trainee teachers from colleges of education system. The objectives, methodology and instruments are also similar. The difference between Muideen's (2011), study and the present one is that while his study focused on the students' usage of electronic media, the present study also examined teachers' usage of electronic media.

Okobia (2011), conducted a research on Availability and Teachers' Use of Instructional Materials and Resources in the Implementation of Social Studies in Junior

Secondary Schools in Edo State, Nigeria. Three research questions were raised and one hypothesis was formulated. A sample of fifty Social Studies teachers were randomly selected from fifty junior secondary schools in five local government areas of Edo State. Data analysis was carried out using t-test for the hypothesis and simple percentages for questions one and two. The results showed that instructional materials and resources available were grossly inadequate. It was also observed that there was no difference in the use of instructional materials between specialist Social Studies teachers and non-specialist teachers. It therefore recommended that instructional materials and resources be made available for the teaching of Social Studies.

The study adopted survey research design utilizing observation of actual Social Studies classrooms. This was to assess the availability of instructional materials and teachers' use of instructional materials. The teachers were observed teaching Social Studies at different occasions for twelve weeks. The result of the study on observation of classrooms revealed that most instructional materials and resources were not available in the schools for the teaching of Social Studies. The most available instructional materials were textbooks and chalkboards. The study is similar to the present study because they both dealt with availability and utilization of media in instruction process. Okobia's (2011), study is similar to the present study with regards to instructional media application in schools, the difference however is while the current study dealt with electronic media application in colleges of education, Okobia's (2011), was on secondary education.

Jude and Dankaro (2012), in a research titled: ICT Resource Utilization, Availability and Accessibility by Teacher Educators for Instructional Development in College of Education Katsina-Ala. The study investigated the utilization of ICT in the instructional mix by teacher educators in College of Education (COE), Katsina-Ala, Benue state, Nigeria. A total of forty (40), COE Katsina-Ala teacher educators from 5 schools randomly selected formed the sample size from a population of two hundred and eighty-seven (287). The

researchers adopted the Ex-post Facto research design and formulated two research questions to guide the study. A researcher made instrument tagged Information and Communication Technology Questionnaire (ICTRQ), was used for data collection. The reliability co-efficient of the instrument used for data collection was 0.71. The data was subjected to analyses using frequencies and percentages. The findings revealed that ICT resources were not available and for that reason, teacher educators could not access them for instructional development purposes. Interestingly Dankaro's research and the present research were on Availability and Utilization of Electronic Resources in Teacher Education. The difference however was on research methodology and area of study.

Of all the reviewed empirical studies by the researcher, none was undertaken to cover teacher training institutions in North Western Nigeria, most of the research reviewed actually discussed the availability or nature of utilization, and none combined availability and effectiveness of resources in teaching and learning of Social Studies in the teacher training colleges. While most researchers were interested in finding either the relationship or effect of electronic media in teaching, the current research was specifically on issue of what are available and how the available is effectively utilized to bring about effective learning.

2.10: Summary

The chapter reviewed literature related to the area of study. The theoretical frame work was based on the work of Mayer (2005), who argued that; multimedia supports the way that the human brain learns. He asserts that people learn more deeply from words and pictures than from words alone, it is referred to as the multimedia principle (Mayer 2005). This is in line with the current research that sought to find out how available electronic media and its utilization can impact on teaching and learning. The Constructivist Learning Model proferred by Windschitl and Andre, 1998; Loyens, Rikers, and Schmidt(2009). Proponents of the constructivist model of learning argue that the learner should have more control over the learning process and that individuals learn better when they discover things on their own. The

model emphasized on learners ability to mentally manipulate objects, posing questions, researching answers, imagining, investigating and inventing, these are all attributes that seek the application of electronic media such as multimedia and internet web for instruction.

Various literature on The Meaning of Media and Technology as Cognitive Tools, Learning with Technology: Constructivist Perspective, Learning from Technology: Behaviourist Perspective, Electronic Media: Concept, Types of Electronic Media, Historical Background of Electronic Media in Teaching, Sources of Electronic Resources and effective application, Teaching and Learning using Electronic Media, Role of electronic Media in Teaching and Learning, Effectiveness of Computer-Assisted Instruction, Teachers' Electronic Media Usage, Electronic Media in Teaching Social Studies, Problems of Electronic Media in Teaching and Learning Social Studies. The reviews were carefully made in relation to the area of study to guide and direct the research due to similarities. The reviewed literature had so far made meaningful contribution toward a wider understanding of the research.

Apart from the review of various theories and literature, different empirical works were also reviewed. Generally the review showed that a number of people have undertaken researches into the availability and utilization of ICT at various levels of education including the Social Studies at the college of education level. Interestingly too, researchers have undertaken studies on availability as well as on utilization, it was undertaken at either an institution in other parts of the world, in Nigeria, or even in the northern part of the nation. Some of these studies were in secondary schools, and focused on other variables. However, a close look showed that no particular study specifically focused on the use of electronic media for the effective teaching of social studies in colleges of education in North West Geo-Political Zone. This study is therefore peculiar in terms of the geographical area and the colleges covered and the variable focused.

CHAPTER THREE
RESEARCH METHODOLOGY

3.1: Introduction

In this chapter an explanation of the procedure for the study is presented. The chapter focused on research design, population of the study, sample and sampling techniques, instruments for data collection, validation of research instruments, reliability of the instruments, administration of the instruments and procedure for data analysis.

3.2: Research Design

This researcher adopted a survey design, which according to Keith (2002), has the following qualities, uniqueness, probability sampling, standardization of measurement and analysis need. This is also what Hale (2011), described as allowing a group of people or subjects to be studied by collecting and analyzing data from a sample of the people or subjects considered as representing the entire group. It is a research design that is good for both small and large population (Hale, 2011). It involves finding information from respondents through a carefully designed questionnaire that sought information on particular area to facilitate a feedback. The responses can be further subjected to statistical inferences in order to arrive at a decision on the inquiries made. This designed was chosen because it provides a high level of general capability in representing a large population which this study dealt with.

3.3: Population

The study population consisted of two hundred and thirteen (213) Social Studies lecturers and five thousand and sixty-nine (5,069) NCE III Social Studies students of the 9 colleges of education in the study area, totaling 5,282 respondents. This was the total enrolment of students by the year 2013 in the institutions. There are 17 NCE awarding institutions in North-west Geo-political Zone of Nigeria, located in Jigawa, Kaduna, Kano, Katsina, Kebbi, Sokoto and Zamfara states. Out of the 17 institutions, five (5) are Federal Colleges of Educations, seven (7) are State Colleges of Education. Four (4) of the institutions

are not colleges of education, but offer NCE certificate courses, while one (1) college of education is privately owned. Six (6) of the institutions, (F.C.E Technical Bichi, F.C.E Technical Gusau, Isa Kaita College of Education, Dutsinma. Kaduna State Polytechnic, Kaduna. Waziri Umaru Polytechnic, Birnin Kebbi and Yusuf Bala Usman College of Legal and Preliminary Studies, Daura), do not offer Social Studies courses, therefore the lecturers and students of those institutions were not captured as part of the population. Similarly, Kano state polytechnic (School of Legal Studies) was purposefully chosen for the pilot study and is therefore excluded from the population of the study. Also, the only private college of education in the zone, Jama'atul Nasrul Islam College of Education, Kaduna was not used in the study because it was not functional as at the period of the study.

Table 3.1: Distribution of Study Population

S/N	Name of Institution	No. of Social Studies Lecturers in 2013	No. of NCE Social Studies Students enrolled in 2013
1.	Federal College of Education, (Technical) Bichi	-	-
2.	Federal College of Education, (Technical, Female only) Gusau	-	-
3.	Federal College of Education, Kano	27	680
4.	Federal College of Education, Katsina	19	127
5.	Federal College of Education, Zaria	47	935
6.	Adamu Augie College of Education, Argungun	7	430
7.	College of Education Gumel Jigawa State	12	238
8.	College of Education, Gidan Waya	14	320
9.	College of Education, Maru	7	317
10.	College of Education, Kumbotso	42	908
11.	Shehu Shagari College of Education, Sokoto	38	865
12.	Isah Kaita College of Education, Dutsin ma	-	-
13.	Jama'atul Nasrul Islam College of Education, Kaduna	-	-
14.	Kaduna Polytechnic	-	-
15.	Kano State Polytechnic (School of Legal Studies)	-	-
16.	Waziri Umaru Federal Polytechnic, Birnin Kebbi	-	-
17.	Yusuf Bala Usman College of Legal and Preliminary Studies, Daura	-	-
	Total	**213**	**5069**

Source: NCCE Statistical Digest on COEs, 2012/2013

3.4: Sample and Sampling Techniques

The nine colleges offering Social Studies were purposively sampled. A total sampled population of one thousand nine hundred and forty-one (1,941) respondents comprising of one hundred and ninety-three (193) lecturers and one thousand seven hundred and forty-eight (1,748) students was obtained. Each of the institutions was considered to be a study cluster and the sample of the population of each of the cluster was obtained using the Krejcie and Morgan guide for determining sample estimates. The values obtained from each cluster were added to obtain the total sample for the study; this gave a total of thirty-four percent (34%) of the entire population. This was done to increase the sample size which was intended to add value to the outcome of the research, as asserted by scholars such as Bichi (2004), and Uzoagulu (2011), that, the larger the sample size of the population the better for the study and the more comfortable the researcher is in making generalization of his findings. The distribution of the sample size is presented in table 3.2 below:

Table 3.2: Distribution of Sample Size

S/N	Institutions	S/Studies Lecturers Sample frame	Sample size	NCE 3 Students sample frame	Sample size
1.	Federal College of Education, Kano	27	24	680	242
2.	Federal College of Education, Katsina	19	18	127	92
3.	Federal College of Education, Zaria	47	41	935	269
4.	Adamu Augie College of Education, Argungu	7	7	430	201
5.	College of Education, Gidan Waya	14	14	320	175
6.	Jigawa State College of Education Gumel	12	12	238	145
7.	Sa'adatu Rimi College of Education, Kano	42	37	908	269
8.	Shehu Shagari College of Education, Sokoto	38	33	865	265
9.	Zamfara State College of Education, Maru	7	7	317	174
	TOTAL	**213**	**193**	**5069**	**1748**
	Total Population Sample		**1,941**		

3.5: Instrumentation

The research instruments for this study were questionnaires. The lecturers' questionnaire, Electronic Media Awareness for Lecturers (EMAL) consisted of seven sections A-F harmonized into single questionnaire. Section A focused on the demographic information of the respondents which sought the name of institution, position, rank, department, academic qualifications and working experience. Section B, the check list, consisted of twenty-two (22) items on types of electronic media for teaching. Section C-G consisted of items that answered research questions on quality, utilization, proficiency and barriers to effective utilization of electronic media. On the other hand, students' questionnaire, Electronic Media Awareness for Students (EMAS), consisted of four (4) sections, A-D. Section A was on demographic information as in name of institution, level and department. Section B contained a checklist on the availability of electronic media while sections C-D were on usability and quality of available electronic media (see appendix II).

3.5.1: Validity of the Instruments

The content and face validity of the instrument were vetted, improved and approved by the Supervisors and ascertained by specialists in the field of Educational Technology, Social Studies, Languages and Measurement and Evaluation. The outcome of their validation improved the instruments in terms of sequential arrangements and clearing ambiguities. The outcomes of the validation equally confirmed the content to measure what it intends to measure.

3.5.2: Pilot Study

All the colleges of education offering Social Studies in the North West geo-political zone were captured and used for the study; therefore, the researcher used Kano State Polytechnic which has similar geographical and socio-cultural disposition and nearest to the study area for the pilot study. The institution offers Social Studies course, and has been part

of the NCCE accredited colleges. A total number of 47 students and 10 lecturers were selected for the pilot test. Data collected were tested and were used to determine the reliability index for the study.

3.5.3: Reliability of the Instrument

The result of the pilot study were subjected to the Cronbach's Alpha, reliability coefficient statistical test and 0.963 and 0.959 were obtained as the reliability index for the lecturers and students questionnaire items respectively. The value obtained is between 0.5-1, which shows that the instruments were reliable. These observed coefficients are approximately equal to one and therefore consistent with Spiegel (1992), who posits that for an instrument to be reliable the observed coefficients must be approximately equal to one. The designed instruments could therefore be said to be reliable and consistent for the study and studies of similar nature. (See appendix IV)

3.6: Procedure for Data Collection

The researcher worked with two research assistants, who were trained on how to administer and assist respondents on how to fill the questionnaires. Both were degree holders in Social Studies and had direct contact with Heads of Departments or assigned officers of the departments. Available electronic media were shown to the researcher in some of the colleges. The questionnaires and checklists were administered to the respondents, and were filled and returned promptly in each of the colleges. Lecturers and research assistants administered the questionnaire in Social Studies lecture rooms on students. This strategy was applied to capture the number of samples in each of the institutions. The study took place between July to September, 2014.

3.7: Procedure for Data Analysis

Frequency counts and percentages were used to explain the demographic data of the study. `Descriptive statistics were used in answering research questions 1-5. In addition, Mann Whitney U test, a non-parametric equivalence of independent sample t-test (a

parametric statistic), (Kinnear & Gray, 2000), was used in testing hypotheses 1-4, to measure differences, while chi-square was used in testing hypotheses 5 at 0.05 level of significance using the Statistical Package for Social Sciences (SPSS) version 21.

CHAPTER FOUR
DATA PRESENTATION AND ANALYSIS

4.1: Introduction

The responses of groups (staff and students) of the colleges of education on the availability and utilization of electronic media in the Teaching and Learning of Social Studies in Colleges of Education in North Western Nigeria were analyzed and discussed in this chapter. The first part of the chapter contains a description of respondents' demographic characteristics considered to be associated with their expressed opinions. In the analysis of

data on the research questions, frequencies and percentages were used along the mean scores for the respective items. Decisions on the items and the main variables of investigation were based on the mid-point for approximation. The mid-point varied by the level of the interval of linker scale used. Research questions were answered by calculating the mean frequency of the items on each question. The rest of the chapter is made up of the test of hypotheses with a discussion of findings from data and the tests.

4.2: Description of Study Variables

One thousand nine hundred and forty-one (1941) questionnaires were administered to both lecturers and students and one thousand eight hundred and twelve (1812) were retrieved. This comprised of one hundred and eighty two (182) for lecturers, one thousand six hundred and thirty (1630) for students. For the lecturers, variables selected were the positions they held in the college, rank, highest educational qualification, status of their colleges and years of working experience. For students, only their academic discipline and level of study were selected. Table 4.1 shows the classifications of the respondents by their status. Essentially all the respondents were involved in the teaching and learning of social studies in the colleges.

Table 4.1: Status of Respondents

Status	Frequency	Percent
Lecturers	182	10.0
Students	1630	90.0%
Total	1812	100.0%

The table 4.1 revealed that 182 respondents representing 10.0% of the respondents being lecturers while 1630 representing 90.0% of the respondents were students totaling 1812. Table 4.2 below presents the lecturers by their level of educational qualifications.

Table 4.2: Classification of Staff by Educational Qualifications

Qualification	Frequency	Percent
Ph.D	5	2.7%
M.Ed, M.Sc	86	47.3%
B.Ed, B.A(Ed)	91	50.0%
Total	182	100.0%

The table 4.2 showed that only 5 or 2.7% of the lecturers had a doctorate degree, 86 or 47.3% had Master degrees, 96 or 50.0% of the total number of lecturers had First Degree.

Table 4.3: Type of Institution of Lecturers

Institution	Frequency	Percent
Federal Colleges	79	43.4%
State Colleges	103	56.6%
Total	182	100.0%

Table 4.3 indicated the type of institution respondents belonged to. As indicated on the table 79 respondents representing 43.4% were staff in the federal colleges of education while 103 representing 56.6% were lecturers of state colleges of education.

4.3: Response to research questions

The main objective of this study was to assess the availability and utilization of electronic media in the teaching and learning of Social Studies in colleges of education in North-West Geo-Political Zone of Nigeria.

Research Question One: What are the types of electronic media resources available for teaching Social Studies in colleges of education in North-West Geo-Political Zone of Nigeria? The objective here was to determine the types of electronic media available in colleges of education in North-West Geo-Political zone of Nigeria.

The assessment was done by examining the respondents' Lecturers of federal colleges (FCE) and Lecturers of state colleges of education (SCOE), response on the available electronic media for the teaching and learning of Social Studies in the colleges. Table 4.4 shows the opinions of the respondents on the selected electronic media. The response of FCE and SCOE Lecturers are presented together in the table with percentages of each group shown independently. Decisions on items were based on the percentage scores obtained for availability and good condition or not available at all. The decision on the items is based on the mean scores of 2.50. The notation for availability is indicated at the right hand side of the table as "A" while not adequately available is indicated with "NAA".

Table 4.4: Opinions of the Respondents on the Types of Electronic Media for the Teaching and Learning of Social Studies in the Colleges

Availability of electronic media	Status	Available / good		Available / not good		Not available		Decision
		Freq.	%	Freq.	%	Freq.	%	
Electronic Board	FCE	19	24	21	27	39	49	NAA
	SCOE	25	9.4	30	15.5	48	75.1	NAA
Overhead Projector	FCE	30	28.8	22	27.0	27	44.1	A
	SCOE	12	12.7	33	22.4	58	64.9	NAA
Opaque Projector	FCE	22	19.8	23	20.7	34	59.5	NAA
	SCOE	29	11.5	14	19.4	60	69.1	NAA
Slide Projector	FCE	20	27.0	21	18.9	38	54.1	NAA
	SCOE	29	13.3	14	21.1	60	65.6	NAA
Filmstrip	FCE	26	23.4	20	18.0	33	58.6	NAA
	SCOE	24	15.0	32	21.7	47	63.3	NAA
Pc Projector	FCE	24	21.6	26	23.4	29	55.0	NAA
	SCOE	17	16.0	31	23.3	55	60.7	NAA
Multimedia Computer	FCE	40	23.4	23	20.7	16	55.9	A
	SCOE	49	28.9	41	24.4	13	46.7	A
Computer System	FCE	53	56.8	23	27.0	3	16.2	A
	SCOE	70	39.6	23	31.8	10	28.7	A
Internet/web Environment	FCE	46	41.4	28	25.2	3	33.3	A
	SCOE	65	33.8	20	29.5	18	36.7	A
Television	FCE	49	62.2	20	18.0	10	19.8	A
	SCOE	69	29.7	24	21.9	10	48.4	A
Video	FCE	40	54.1	20	18.0	19	27.9	A
	SCOE	66	26.0	28	21.3	9	52.6	A
Radio	FCE	44	48.6	27	24.3	8	27.0	A
	SCOE	59	26.3	31	21.7	13	52.1	NAA
Cassette Recorder/Player	FCE	44	50.5	27	18.9	8	30.6	A
	SCOE	59	24.8	31	21.9	13	53.3	A
Video Camera/Still Camera	FCE	42	37.8	18	16.2	19	45.9	NAA
	SCOE	29	24.6	21	21.1	53	54.3	NAA
Microphone/Speaker System	FCE	55	49.5	11	24.3	13	26.1	A
	SCOE	57	27.2	23	23.9	23	48.9	A
Telephone/Intercom	FCE	22	28.8	17	15.3	40	55.9	NAA
	SCOE	13	23.6	27	20.6	63	55.8	NAA
Fax Machines	FCE	13	20.7	10	9.0	56	70.3	NAA
	SCOE	16	13.6	12	23.6	75	62.8	NAA

Of all the electronic media devices indicated in table 4.4, Overhead Projector, Multimedia computer, Computer system, and Internet/web environment, Television, Video, Cassette Recorder and Microphone were said to be adequately available and in good condition by the respondents. Although the response of Lecturers in FCE and Lecturers in SCOE were unanimous on Computer system, Internet/web environment, Television, and Microphone, the lecturers in FCE differed in opinion on adequacy of availability, Overhead Projector, and Multimedia Computer. The lecturers of SCOE also differed in availability of Multimedia computer. Electronic board, Opaque projector, Slide projector, Filmstrip and PC projector, Telephone/intercom, Fax machines were available but not in good condition, meaning it is not adequate. This is indicated in the table with high percentage scores by both status and decision of each finding. It could be concluded that most of the electronic media devices required for the teaching and learning of Social Studies in the Colleges of education in North-West Geo-Political Zone of Nigeria were not adequately available.

Research Question Two: To what extent are lecturers and students aware of the electronic media available in the colleges of education in North West Geo-Political Zone of Nigeria?

The objective was to find out the lecturers and students awareness of the available electronic media for the teaching and learning of Social Studies in the colleges. The electronic media were listed for the lecturers and the students to indicate the ones they were aware existed in the colleges. Their responses are presented in table 4.5. The decision on each of the respective item was based on the mean scores. In the table, mean score of 2.5 and above are taken for agreement while a mean score of below 2.5 indicated disagreement.

Table 4.5: Respondents' Awareness on the Availability of Electronic Media for the Teaching and Learning of Social Studies in the Colleges

S/N	Available electronic media	Status	Aware		Not Aware		Mean
			Freq.	%	Freq.	%	
1.	Electronic Board	Lecturers	125	68.6	57	31.4	2.12
		Students	650	39.9	920	60.1	1.96
2.	Overhead Projector	Lecturers	62	34.1	120	65.9	1.84
		Students	420	25.7	1210	74.3	1.89
3.	Opaque Projector	Lecturers	48	26.3	134	73.7	1.83
		Students	512	31.4	1118	68.6	1.88
4.	Slide Projector	Lecturers	40	21.9	142	78.1	1.78
		Students	499	30.6	1131	69.4	1.89
5.	Filmstrip	Lecturers	39	21.4	143	78.6	1.87
		Students	450	27.6	1180	72.4	1.90
6.	Pc Projector	Lecturers	63	34.6	119	65.4	1.88
		Students	520	31.9	1110	68.1	2.00
7.	Multimedia Computer	Lecturers	43	23.6	139	76.4	2.04
		Students	450	27.6	1180	72.4	2.14
8.	Computer system	Lecturers	170	93.4	12	6.6	2.66
		Students	694	42.5	936	57.5	2.43
9.	Internet/ Web Environment	Lecturers	79	43.2	103	56.8	2.38
		Students	1136	69.6	494	30.4	2.31
10.	Television	Lecturers	123	67.5	59	32.5	2.57
		Students	645	39.5	985	60.5	2.19
11.	Video	Lecturers	140	76.9	42	23.1	2.38
		Students	560	34.3	1070	65.7	2.11
12.	Radio	Lecturers	59	32.4	123	67.6	2.45
		Students	999	61.2	531	38.8	2.14
13.	Cassette Recorder/Player	Lecturers	40	21.9	142	78.1	2.33
		Students	985	60.4	645	39.6	2.05
14.	Video Camera	Lecturers	25	13.7	157	86.3	2.21
		Students	1321	81	309	19	2.03
15.	Microphone/Speaker System	Lecturers	152	83.5	30	16.5	2.33
		Students	1421	87.1	209	16.9	2.11
16.	Telephone/Intercom	Lecturers	30	16.4	152	83.6	2.06
		Students	264	16.1	1366	83.9	2.05
17.	Fax Machines	Lecturers	38	20.8	144	79.2	1.79
		Students	321	19.6	1309	80.4	1.91
	Total Mean						**2.10**

From the total mean of Table 4.5, it can be summed that the awareness level of both lecturers and students on electronic media available in the colleges of education in North West Geo-Political Zone of Nigeria, is below the mean score of 2.5, meaning low or no awareness. Despite the total mean score of low or no awareness, the itemized variables under the respondents gave more insight in to the issue of awareness. Items 8, 9 and13, computers, internet web and tape recorders, were said to be available by both lecturers and students. Other items are also available, but are insignificant in terms of number as depicted by the table.

Research Question Three: To what extent do Social Studies lecturers utilize electronic media in the teaching process in colleges of education in North-West Geo-political zone?

The objective here was to find out how the available resources were being effectively utilized for the teaching and learning of Social Studies. The responses of the two groups of respondents (lecturers and students) are presented in Table 4.6. The decision on the items is based on the mean scores with 2.50 for used often and below for occasionally or not used at all.

Table 4.6: Responses on the extent of Utilization of Available Electronic Media for the Teaching and Learning of Social Studies in the Colleges

S/N	Available electronic media	Status	Very often		Often		occasionally		Not at all		Mean
			Freq.	%	Freq.	%	Freq.	%	Freq.	%	
1.	Electronic Board	Lecturers	39	25.2	30	8.1	40	19.8	73	46.8	2.12
		Students	250	24.0	120	6.9	590	10.0	670	59.1	1.96
2.	Overhead Projector	Lecturers	6	5.4	30	15.3	70	36.9	76	42.3	1.84
		Students	120	16.0	230	12.3	634	16.0	646	55.7	1.89
3.	Opaque Projector	Lecturers	15	7.2	27	15.3	25	30.6	115	46.8	1.83
		Students	113	16.0	159	12.7	482	14.5	876	56.8	1.88
4.	Slide Projector	Lecturers	10	5.4	29	15.3	40	31.5	103	47.7	1.78
		Students	140	16.3	159	11.8	345	16.9	986	55.0	1.89
5.	Filmstrip	Lecturers	15	8.1	30	17.1	32	28.8	105	45.9	1.87
		Students	168	15.7	195	12.5	346	17.8	921	54.0	1.90
6.	Pc Projector	Lecturers	25	9.0	29	12.6	40	36.0	88	42.3	1.88
		Students	225	17.9	178	14.2	421	17.4	806	50.5	2.00
7.	Multimedia Computer	Lecturers	16	14.4	24	18.0	40	24.3	102	43.2	2.04
		Students	250	19.9	216	17.2	498	19.7	666	43.2	2.14
8.	Computer system	Lecturers	60	27.9	45	25.2	49	31.5	30	15.3	2.66
		Students	360	28.7	420	16.7	530	23.1	320	31.5	2.43
9.	Internet/ Web Environment	Lecturers	36	26.1	40	20.7	50	18.0	56	35.1	2.38
		Students	331	26.4	431	15.7	456	20.8	412	37.2	2.31
10.	Television	Lecturers	37	24.3	45	27.0	39	29.7	61	18.9	2.57
		Students	645	24.7	531	14.8	295	15.3	159	45.2	2.19
11.	Video	Lecturers	22	19.8	40	25.2	60	27.9	60	27.0	2.38
		Students	560	22.0	400	13.9	257	17.7	413	46.4	2.11
12.	Radio	Lecturers	50	26.1	39	18.9	41	28.8	52	26.1	2.45
		Students	499	23.4	367	13.6	431	16.2	333	46.7	2.14
13.	Cassette Recorder/Player	Lecturers	40	18.9	39	22.5	50	31.5	53	27.0	2.33
		Students	573	20.3	349	13.4	357	17.7	351	48.6	2.05
14.	Video Camera	Lecturers	25	18.9	40	14.4	15	35.1	102	31.5	2.21
		Students	244	19.4	150	11.9	290	21.2	946	47.5	2.03
15.	Microphone/Speaker System	Lecturers	20	18.0	25	22.5	38	34.2	119	25.2	2.33
		Students	254	20.2	326	13.5	225	23.7	825	42.6	2.11
16.	Telephone/Intercom	Lecturers	30	18.9	20	18.0	25	13.5	107	49.5	2.06
		Students	264	21.0	255	13.0	207	16.5	904	49.5	2.05
17.	Fax Machines	Lecturers	15	11.7	13	11.7	20	20.7	134	55.9	1.79
		Students	229	18.2	136	10.8	181	14.4	1084	56.5	1.91
	Total Mean										**2.10**

Only two electronic media devices could be said to have been adequately used or effectively utilized in Table 4.6, the computer system and television. Even in the utilization of the computer system and television, only the lecturers agreed that the devices were often used for the teaching and learning of social studies in the colleges while students in the colleges did not agree with the Lecturers in the colleges. From the expressed total mean scores (2.10) on all the other devices listed in the table, none meets the criteria for effective utilization for the teaching and learning of social studies in the colleges, going by the mean scores by the two groups (lecturers and students in the colleges) for the respective electronic media devices. From the opinions of the respondents therefore, it could be said that, the necessary electronic media devices for the teaching and learning of Social Studies in the colleges of education in North-West Geo-Political Zone of Nigeria are not effectively used even where they were available.

R**esearch Question Four:** What factors motivate Social Studies Lecturers to use Electronic media?

The aim here was to identify the factors that influence teachers' usage of electronic media devices for the teaching of Social Studies in the colleges of education. Among others the assessment took into consideration the lecturers' participation in seminars, divesting the use of instructional materials and the type of support provided by the colleges in terms of the required infrastructure and equipment. Table 4.7 shows the opinions of the staff on the selected items.

Table 4.7: Opinions of the Lecturers on Factors Influencing their Usage of the Available Electronic Media in Classroom Instruction of Social Studies in the Colleges

S/N	Factors that influence Social Studies teachers to use electronic media devices	Qualification of Lecturers	Strongly Agree		Agree		Disagree		Strongly Disagree		Mean
			Freq	%	Freq	%	Freq	%	Freq	%	
1.	Participating in seminars or taking courses in electronic media application	PhD & M.Ed	15	16.7	21	23.3	30	33.3	24	26.7	1.69
		B.Ed, B.A Ed	45	48.9	20	21.7	15	16.3	12	13.4	
2.	Technical units support in the schools to encourage the electronic media usage	PhD & M.Ed	25	27.8	15	16.7	30	33.3	20	22.2	1.87
		B.Ed, B.A Ed	31	33.7	20	21.7	29	31.5	12	13	
3.	Investments of the institution on instructional technology	PhD & M.Ed	-	-	13	14.4	59	65.6	18	20	1.88
		B.Ed, B.A Ed	27	29.3	38	41.3	20	21.7	7	7.6	
4.	Developing policies and plans for diffusion of the instructional technology in teaching	PhD & M.Ed	16	17.8	40	43.4	30	33.3	4	4.4	1.76
		B.Ed, B.A Ed	51	55.4	27	29.3	10	10.9	4	4.3	
5.	Reduction of work load to provide opportunities for lecturers to train on instructional technology.	PhD & M.Ed	13	14.4	33	36.7	40	44.4	7	7.6	1.92
		B.Ed, B.A Ed	31	33.7	40	43.4	17	18.5	4	4.3	
6.	Other agencies support for training in electronic media for instruction.	PhD & M.Ed	-	-	15	16.7	30	33.3	45	50	1.73
		B.Ed, B.A Ed	51	55.4	20	21.7	10	10.9	11	11.6	
7.	Loans to lecturers for acquisition of electronic media appliances.	PhD & M.Ed	15	16.7	12	13.3	50	55.6	13	14.4	2.24
		B.Ed, B.A Ed	25	27.1	30	32.6	30	32.6	5	5.4	
8.	Personal interest in electronic media usage	PhD & M.Ed	-	-	-	-	47	52.2	43	47.8	1.80
		B.Ed, B.A Ed	-	-	-	-	50	54.3	42	44.7	
	Total Mean										**1.86**

Note: PhD and M.Ed = 90; B.Ed, B.Sc = 92

Results from Table 4.6 show that the identified factors that could motivate lecturers to use the electronic devices in the colleges were either very weak motivators or did not motivate lecturers to use electronic media to teach social studies. This is demonstrated in the table for item 1 to 8 where all the mean scores were below 2.5 respectively. It can be conveniently concluded that going for seminars, technical support, investing in infrastructures, development of policy plans, reduction of workloads, other agencies support loans to lecturers to own computers, and personal interests are not motivating factors for the lecturers to use electronic media in teaching of social studies in the colleges.

Research Question Five: What are the Major constraints to effective utilization of electronic media in classroom pedagogy?

The objective here was to find out the major constraints to the use of electronic media devices in teaching and learning of Social Studies in the colleges. The constraints listed for the lecturers to indicate the major constraints that limit the use of the electronic media in the colleges were rated by the staff on a four point scale as shown in Table 4.8. The decision on each of the respective item was based on the mean scores. In the table, mean score of 2.5 and above are taken for agreement while a mean score of below 2.5 indicated disagreement.

Table 4.8: Responses of the Lecturers on Constraints to the Effective Utilization of Electronic Media for the Teaching and Learning of Social Studies in the Colleges

Sn	Major constraints to effective utilization of electronic media in classroom pedagogy	Status	Strongly Agree		Agree		Disagree		Strongly Disagree		Mean
			Freq	%	Freq	%	Freq	%	Freq	%	
1.		FCE	39	49.3	32	40.6	5	6.4	3	3.7	2.80
	Insufficient time	SCOE	40	38.8	53	51.4	6	5.8	4	3.6	
2.	Insufficient teachers' technical knowledge	FCE	29	36.7	25	31.6	15	18.9	10	12.6	2.75
		SCOE	38	36.8	43	41.7	15	14.5	7	6.7	
3.	Problems of accessibility to existing hardware	FCE	30	37.9	38	48.1	28	35.4	15	18.9	2.75
		SCOE	41	40	37	36	17	16.5	8	7.5	
4.	Lack of well-equipped computer laboratory	FCE	21	26.6	15	19	20	25.3	23	29.1	2.91
		SCOE	47	45.6	39	37.9	15	14.6	2	1.9	
5.		FCE	27	34.2	24	30.4	12	15.2	16	20.2	2.95
	Lack of technical infrastructure	SCOE	52	50.5	33	32	10	9.7	8	7.8	
6.	Shortage of electronic media devices	FCE	15	19	19	24.1	40	50.6	5	6.3	2.89
		SCOE	43	41.7	29	28.2	20	19.4	12	11.7	
7.		FCE	34	43	35	44.3	10	12.7	-	-	3.03
	Absence of reward systems	SCOE	45	43.7	37	35.9	15	14.6	6	5.8	
8.	Poor technical and physical infrastructure.	FCE	23	29.1	36	45.6	18	22.9	2	2.5	2.79
		SCOE	46	44.7	33	32	16	15.5	8	7.8	
9.	Inadequacy of computers used by learners	FCE	22	27.8	33	41.8	14	17.7	10	12.6	2.78
		SCOE	39	37.9	45	43.7	6	5.8	13	12.6	
10.	Lack of guidance and support in electronic media usage	FCE	35	44.3	27	34.2	9	11.4	7	8.9	2.93
		SCOE	47	45.6	29	28.2	23	22.3	4	3.9	
11.		FCE	28	35.4	29	36.7	14	17.7	8	10.1	2.66
	Inadequate funding	SCOE	51	49.5	27	26.2	20	19.4	5	4.9	
12.	Inefficiency in the use of instructional software	FCE	42	57	21	26.6	9	11.4	7	8.9	3.10
		SCOE	61	59.2	23	22.3	12	11.7	7	6.8	
13.	Scarcity in resources on technology	FCE	21	26.6	18	22.8	22	27.8	18	22.8	2.81
		SCOE	38	36.9	42	40.8	10	9.7	13	12.6	
14.	Lack of provision for professional development	FCE	13	16.5	17	21.5	30	38	9	11.4	3.32
		SCOE	59	57.3	27	26.2	7	6.88	12	11.7	
15.	Lack of interest of teachers in technology usage	FCE	37	46.8	26	32.9	13	16.5	-	-	2.80
		SCOE	39	37.9	36	35	17	16.5	11	10.7	
16.	Lack of teachers confidence in electronic media usage	FCE	11	13.9	17	21.5	43	54.4	8	10.1	3.28
		SCOE	29	28.2	21	20.4	37	35.9	16	15.3	
17.	Difficulties of improper teaching methods for technology usage	FCE	23	29.1	16	20.3	23	29.1	17	21.5	2.74
		SCOE	49	47.6	27	26.2	20	19.4	7	6.8	
18.	Ineffectiveness in erratic power supply areas.	FCE	25	31.6	16	20.3	25	31.6	13	16.5	2.47
		SCOE	49	47.6	23	22.3	25	24.3	6	5.8	
19.	High acquisition and maintenance cost of equipment	FCE	23	29.1	31	39.2	15	19	10	12.6	2.86
		SCOE	51	49.5	26	25.2	20	19.4	6	5.8	
20.	Believe in electronic media as propagator of social vices	FCE	13	16.5	11	13.9	40	50.6	15	19	2.72
		SCOE	31	30.1	24	23.3	30	29.1	19	18.4	
21.	Long time required to master skills	FCE	21	26.6	43	54.4	15	19	12	15.2	3.02
		SCOE	36	35	29	28.2	25	24.3	13	12.6	
22.	Most electronic software easily becomes obsolete	FCE	10	12.6	12	15.2	40	50.6	17	21.5	2.71
		SCOE	19	18.4	26	25.2	35	34	23	22.3	
	Total Mean										**2.87**

From the mean scores of the respondents in Table 4.8, there is practically every obstacle to the use of electronic media for the teaching and learning of Social Studies in the colleges. These obstacles range from enabling policies of the colleges to human and material resources required for the effective use of such devices for the teaching and learning of social studies in the colleges. For example, there is no policy regarding the time allocation for the utilization of such devices. This is reflected in the response of the staff for the first item in the table where they agreed that there is the problem of insufficient time to prepare electronic-based materials for the teaching and learning of social studies especially since such effective usage require a long time to master the skills.

There is the problem of inadequacy in the provision of the required facilities and equipment for the effective utilization of the devices. In the table, this can be deduced from the respondents' opinion in items 4 and 5 where they agreed that the colleges lack well-equipped computer laboratories and technical infrastructure (on instructional technology). The lecturers were generally of the opinion that there is a shortage of electronic media devices for effective use in the teaching and learning of social studies. This is reflected in item 9, where they agreed that the computers available for the teaching and learning of social studies were grossly inadequate for the purpose. Combined with these inadequacies was the issue of the environment which the staffs were unanimous on its inconsistency for effective utilization of electronic media in item 8 where they agreed that it was poor in terms of technical and physical infrastructure for such learning.

At the level of human resources there was general problem of capability which was reflected in item 2, where the lecturers were of the view that technical teachers were sufficient and in item 10, the lecturers were of the view that the colleges lack the professional guidance and support on the use of electronic media for teaching and learning. Thus, in item 12 of the table, the lecturers agreed that there is a problem of inefficiency in the use of instructional software with electronic media resources in the colleges. These problems

associated with human competence in the use of electronic media could be attributed to the lack of provision for professional development opportunities for staff in electronic media devices for the teaching and learning of social studies in the colleges.

Attitude of lecturers towards the use of the electronic media devices for the teaching and learning of social studies was found to be a major problem in the colleges as well. In item 15 of the table, the staff agreed that lack of interest of teachers in technology is partly the constraint to the usage of the electronic media for the teaching and learning of social studies in the colleges. This problem is reflected in item 16 of the table where the lecturers agreed that there is a general lack of confidence among lecturers on the use of electronic media for teaching social studies in the colleges. Coupled with the attitudinal disposition of the lecturers towards the use of the electronic media in the teaching and learning of social studies is the absence of motivational strategies in the colleges. In item 7 of the table for example, the lecturers agreed that there was a problem of absence of reward systems for encouraging technology usage in the colleges and the belief that electronic media were tools for propagating social vices.

Funding was another major constraint to the effective utilization of the electronic media devices for the teaching and learning of social studies in the colleges. In item II the table, the lecturers agreed that the fund provided were inadequate for the integration of the technology into the teaching and learning of social studies in the colleges. Therefore, they had problems of acquisition due to the cost of equipment, lack of accessibility to existing hardware (computer, overhead projector) and scarcity in resources on technology for obtaining information. For existing devices, there was the problem of maintenance. The lecturers were also of the view that part of the constraints was that most electronic software easily become obsolete. Coupled with these was the lack of steady power supply which also hindered the effective utilization.

There was also the problem of adaptation to the required pedagogical application which the lecturers agreed that it presented some difficulties in the use of the electronic media in the teaching and learning of Social Studies. These constraints all point to one thing, that the electronic media devices were not being effectively used for the teaching and learning of Social Studies in the colleges of education.

4.4: Test of Hypotheses

The hypotheses formulated to test for possible differences in the opinion of lecturers on the availability and utilization of the electronic media for the teaching and learning of Social Studies in the colleges were tested for statistical significance. The hypotheses were formulated along the specific objectives and research questions of the study. The tests were conducted as follows:

Hypothesis I: There is no significant difference in the opinions of lecturers in state colleges of education and federal colleges of education on types of electronic media resources available for teaching social studies in the colleges.

Table 4.9: Mann Whitney U test Summary on the Opinion of Lecturers in State Colleges of Education and Federal Colleges of Education on Types of Electronic Media Resources available for Teaching Social Studies in the Colleges

	College Type	N	Mean Rank	Sum of Ranks	Mann Whitney U	df	z-value	P value
Electronic resources	State Colleges of Education	103	18.43	1898.29	103.21	181	0.732	0.464
	Federal Colleges of Education	79	19.02	1502.58				
	Total	182						

(U =103.21, df = 181; P < 0.05)

From the result of the Mann-Whitney analysis in table 4.10, U =103.21, df = 181; P < 0.05 shows that the p value 0.464 is greater than the 0.05 level of significance. This shows that there is no significant difference between lecturer's opinion from the State Colleges of Education and lecturer's opinion from Federal Colleges of Education in terms of availability of electronic media resources. Therefore the null hypothesis was retained, meaning that, there is no significant difference in the opinion of lecturers in State Colleges of Education and Federal Colleges of Education on types of electronic media resources for teaching Social Studies in the colleges.

Hypothesis II: There is no significant difference in the awareness of lecturers and students on availability of electronic media in colleges of education in North-West Geo-political zone.

Table 4.10: Mann Whitney summary on awareness of available electronic media for teaching and learning of social studies by status of respondents

	Status	N	Mean Rank	Sum of Ranks	Mann Whitney U	Df	z-value	P value
Awareness of availability	Lecturers	182	16.22	2952.04	351.12	1811	-13.72	0.023
	Students	1630	19.07	31084.10				
	Total	1812						

(U = 351.12, df = 1811; P< 0.05)

From table 4.10, the calculated U = 351.12, (1811); P< 0.05. The p value calculated of 0.023 is less than the 0.05 level of significance. This shows that lecturers are more awareness of the availability of electronic media than the students. This indicates that there is significant difference in the awareness level of lecturers and students on the availability of electronic media in the colleges of Education in North West Geo-political Zone. Therefore the null hypothesis was rejected, meaning that there is significant difference in the awareness level of lecturers and students on the availability of electronic media in the colleges of Education in North West Geo-political Zone.

Hypothesis III: There is no significant difference in the opinion of lecturers and students on utilization of electronic media in the colleges of Education in North West Geo-political Zone.

Table 4.11: Mann Whitney U test Summary on Utilization of Available Electronic Media by Lecturers and Students in the Colleges of Education

	Status	N	Mean Rank	Sum of Ranks	Mann Whitney U	df	z-value	P value
Utilization	Lecturers	182	17.910	3259.62	0.212	1811	18.873	0.001
	Students	1630	24.701	40262.63				

(U = 0.212, df = 1811; P< 0.05)

Table 4.11 indicates a significant difference in the utilization of electronic media by lecturers and students in colleges of education in North West Geo-political Zone. Since the calculated p value 0.001 (U = 0.212, df = 1811; P< 0.05) is less than the 0.05 level of significance. Thus, the null hypothesis is rejected, meaning that, there is a significant difference in the utilization of electronic media by lecturers and students in the colleges of education in North West Geo-political Zone.

Hypothesis IV: Factors that motivate Social Studies lecturers to use electronic media are not significantly different among lecturers of different qualification in colleges of education in North-West Geo-political zone.

Table 4.12: Mann Whitney summary on Motivation in the Utilization of Electronic Media for the Teaching and Learning of Social Studies among lecturers in the Colleges of Education

	Status	N	Mean Rank	Sum of Ranks	Mann Whitney U	Df	z-value	P value
Qualification	Ph.D/M.Ed	91	24.91	2266.81	121.57	181	1.87	0.001
	B.A./B. A. Ed	91	17.70	1610.79				
	Total	182						

(U = 121.57, df = 181; P< 0.05)

Table 4.12 indicates that the U = 121.57, df = 181; P< 0.05 shows that the p-value 0.001 is less than the 0.05 level of significance. This shows that there is a significant difference in the factors that motivate lecturers in the colleges of Education in North West Geo-political Zone to use electronic media based on their qualifications. In favor of the lecturers with higher degrees that has high mean ranks (24.91). Therefore the null hypothesis was rejected. This indicates that there is a significant difference in the motivation of lecturers to use electronic media in colleges of education in North West Geo-political Zone.

Hypothesis V: There is no significant difference in the opinion of lecturers in state colleges of education and federal colleges of education on constraints to the use of electronic media in colleges of education in North-West geo-political zone.

Table 4.13: Chi-square Summary on Constraints to the Effective Utilization of Electronic media for the Teaching and Learning of Social Studies in Colleges

Variable	F_O	F_e	X^2 - value	df	Prob.
Federal colleges of education	78	96.5	19.10	4	0.001
State colleges of education	104	96.5			
Total					

$X^2 =$ 19.10; df = 4; P < 0.05

Table 4.13 indicates that there is a significant difference in constraints to the use of electronic media in Federal and State colleges of education in North West Geo-political Zone. The chi-square calculated X^2 = 19.10; df = 4; P < 0.05 shows that the calculated p value is less than the 0.05 level of significance. This indicates that there is a significant difference in constraints to the use of electronic media in between federal and state colleges of Education in North West Geo-political Zone.

4.5: Summary of Major Findings

The summary of major findings from the analysis of the data and test of the hypotheses are:

1. The lecturers in the federal and state colleges of education concurred that out of 18 enumerated electronic media devices required for the teaching and learning of social studies, only 7 were available and in good condition in the colleges. They are, overhead projector, multimedia computer, computer system, internet web environment, television, and video and microphone speaker system. The rest were not adequately available.
2. Most of the lecturers and students were not aware of the existence of some electronic devices (such as pc projector, overhead projector, opaque projector and filmstrip) in other units of the colleges.
3. There was no effective utilization of electronic media by lecturers and students in the teaching and learning of social studies in the selected colleges of Education.
4. Of all the variables that supposed to motivate lecturer's use of electronic media, loan facility to acquire electronic media was found to be the most significant factor that motivates lecturers to use electronic media in teaching..
5. The colleges suffered from shortage of technical staff in the use of electronic media, inadequacy of material resources and lack administrative policies regarding the use of electronic media for the teaching and learning of social studies.

4.6: Discussion of the Findings

In the course of assessing the availability and utilization of electronic media in the teaching and learning of Social Studies in colleges of education in North West Geo-Political Zone of Nigeria from the perspective of lecturers and students of the colleges, five research questions were formulated and answered. Also a total of five null hypotheses were tested to establish possible significant differences in the opinions of the respondents in the assessment of the variables used in line with the research objectives and questions.

The major finding of the study on availability of electronic media in the colleges, revealed that 10 out of 17 (or 59%) of the electronic media were not adequately available; only seven (7) types (41%) were available. these are; overhead projector, multimedia computer, computer system, internet web environment, television, video and microphone speaker system. Accordingly, the hypothesis tested for differences in the opinions of lecturers in federal colleges of education and state colleges of education on types of electronic media available for the teaching and learning of Social Studies in the colleges. The result did not reveal a significant difference in the opinions of the lecturers in both federal and state colleges of education. The null hypothesis was therefore retained at, 0.05 level of significance. The finding on research agrees with Okobia (2011), who conducted a research on "Availability and Teachers' Use of Instructional Materials and Resources in the Implementation of Social Studies in Junior Secondary Schools in Edo State". The results showed that instructional materials and resources available were grossly inadequate. The study also revealed that most instructional materials and resources were not available in the schools for the teaching of Social Studies. The most available instructional materials were textbooks and chalkboards. This finding is also in line with that of Ebeniza and Oluchi (2011) on Availability of ICT in Teaching and Learning of English Language in Secondary Schools in Okigwe Educational Zone, Imo State, Nigeria. The findings revealed that the ICT facilities found in the schools were very few, except for hand-sets. Equally Richard, Mathew and Ugbe, (2011), in a research, Assessing Undergraduate Students Accessibility to and Utilization of Internet Services in Cross Rivers University of Technology Multi Campus System, found out that, the campuses had no efficient internet services for the students to learn from. Though there are some internet facilities in some libraries, but they were not functional due to a reason or the other. In contrast to this finding, Muideen, (2011), in a study, An Assessment of Students Usage and Availability of ICT Facilities in Colleges of

Education: Problems and Prospects concluded that there was availability of electronic resources in the colleges ICT centers.

Finding on awareness of lecturers and students on availability of electronic media resources in the colleges revealed that, lecturers were more aware of, computer system, internet web environment, television, radio and cassette player than the students. Lecturers were aware of the materials but the students did not see it in classroom application. Test of hypothesis also revealed that there was significant difference between lecturers' and students' awareness of the availability of the electronic media identified by the study. The finding from research is in line with the findings of James (2009), who studied utilization of electronic media in the teaching of Mathematics in universities and found that lecturers used electronic media more than students. The study however disagreed with the findings of Lawal, Ahmadu and Dogara (2003), on the Use of ICT in Teaching and Learning of Science Technology and Mathematics in Six selected Colleges in Kano, found out that most electronic media resource for teaching were not accessible by both teachers and students because they were not there. Oduwole (2004), in his research on Utilization of Internet and its Impact on the Research Output of Agricultural Scientists at University of Agriculture Abeokuta, differed in opinion as he opined that, students are aware of the enormous contributions of computer search engines in their assignments and learning process.

The major finding on utilization of electronic media in the colleges revealed that, there was no effective utilization of electronic media by lecturers and student in the teaching and learning of social studies in the colleges of education. Only computer and television were found be favorably utilized as agreed to by both the lecturers and students of the colleges. It was therefore concluded that, the necessary electronic media for teaching and learning of social studies in the colleges were not effectively utilized. On the other hand, test of hypothesis revealed that there is a significant difference in the opinion of students and lecturers on the level of utilization of electronic media with students rating the level of utilization low and lecturers rating it high. The finding agrees with Duru and Ozoji (2011)

who reported that computer teachers in secondary schools do not utilize computer hard ware and internet applications in lessons; that teachers lack the required skills to operate these resources; secondary schools lack the necessary infrastructures required for utilization of the resources and applications. Similarly, Olufunde, Oyetola and Kehinde (2010), in a study on Access and Utilization of ICT Among Lecturers and Students in South West Nigerian Public Universities, found that 89% of the respondents claimed that they had rarely or never had access to ICT facilities. Ololube (2006), also studied on teacher ICT utilization competencies in sub-Saharan Africa, found out that teachers were not well trained in using ICTs in teaching. In further support of the present research findings, Ehikhamenor (2003), in a study on Utilization of Internet information by Nigerian Scientist in 10 Universities observed that, scientists in Nigeria still heavily rely on printed information services. A contrary view was however provided by a study conducted by Ebeniza and Oluchi (2011) on Availability of ICT in teaching and learning of English language in Okigwe educational zone, Imo State, Nigeria, which revealed that the available ICT facilities were to a great extent used by the teachers in the schools.

Major research finding on motivation to use electronic media in the teaching of social studies in the colleges revealed that, loan to lecturers for the acquisition of electronic media was found to be the most significant factor that motivates lecturers to use electronic media in the teaching and learning of social studies in colleges of education. Other factors such as investment of the institution on electronic media devices, reduction of work load to lecturers in order to acquire training and technical support unit were also significant factors that motivate lecturers to use electronic media in the teaching and learning of social studies in the selected colleges of education. On the other hand, test of hypothesis revealed that there is a significant difference in the motivation of lecturers to use electronic media based on their qualifications in the colleges of Education in North West Geo-political Zone. In favor of the lecturers with higher degrees that has high mean ranks (24.91). Therefore the null hypothesis

was rejected. In item 1 for example, the lecturers did not agree that participating in seminars or taking courses in electronic media application could help or motivate them to use electronic media. Of course, this is consistent with the non-availability of such devices in the colleges. Therefore, the existence of technical support units in the colleges to encourage the electronic media usage and reduction of work load to provide opportunities to teachers for developing instructional materials through the use of the electronic media devices are no factors of motivation in the absence of such devices.

Of note in the table 4.6 on research findings, is the opinion that, the colleges do not invest on such electronic media infrastructure for instructional technologies and that there were no developed policies and plans for diffusion of the instructional technologies through the use of electronic media devices. Apart from the above limitations, there were no external agencies supports for teachers to obtain training skills in some of the electronic media for instruction in the teaching of social studies in the colleges. At the personal level, there were no facilities like loans to teachers for acquisition of electronic media appliances which could help to generate personal interest in electronic media usage. It could therefore be said that there were no enabling factors to motivate the teachers in the use of electronic media devices for the teaching and learning of Social Studies in the colleges. The findings of a research conducted by Gulbahar and Guven (2008), A Survey on ICT Usage and the Perception of Social Studies Teachers in Turkey, found out that, though teachers are willing to use ICT, but lack of in-service training opportunities hinders their capability to use media effectively in classroom. Hennessy, Harrison and Wamakote (2010), studied teacher's use of Information and Communication Technology (ICT) in primary and secondary schools in Sub-Saharan Africa, The research focused on the internal factors of influence on teachers' use, or lack of use, of technology in the classroom. Research findings showed that new digital technologies have the potential to revolutionize the quality of subject teaching and learning when carefully integrated into the classroom.

Similarly, Beyerbach, Walsh, and Vannatta (2001:113-135), conducted a research study to investigate teachers' use of technology infusion and its role in student learning in the USA. The results suggest that technology infusion in teaching is a multifaceted process that takes time, support, and collaboration.

Major research finding on constraints to the use of electronic in classroom instruction by lecturers in the colleges of education revealed that, the colleges suffered from shortage of experts in the use of electronic media, inadequacy of material resources and lack administrative policies regarding the use of electronic media for the teaching and learning of social studies.

On the other hand, test of hypothesis revealed that there is a significant difference in the opinion of lectures and students on the constraints to the use of electronic media. The null hypothesis was therefore rejected. The opinion of lecturers of federal colleges and state colleges on the constraints to the effective utilization of electronic media for the teaching and learning of social studies in the colleges was retained as there are constraints to the use of electronic media in teaching. These constrain ranges from deficiency in human capacity to dearth of infrastructures and necessary equipment for the effective utilization of electronic media for the teaching and learning of social studies. This finding agrees with Garuba (2003), who reported that the Nigerian teacher operates from a deficient environment where teaching and learning is seriously impoverished particularly in the rural set up. And even in the urban areas only few schools are connected to the national grid while virtually all the rural schools do not enjoy basic facilities like electricity. The findings also agrees with the report of Okobia (2011), who noted among problems associated with the use of instructional materials in most parts of Nigeria, include cost of manufacturing and maintenance of instructional materials. The finding reflected a similar study by Jotia and Matlale (2011), where it was reported that limited availability and poor utilization of instructional materials in the teaching

of social studies in most Nigerian schools have been corroborated by the reports of other investigators both within and outside Africa.

CHAPTER FIVE
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1: Introduction

This chapter provides a summary on the research, conclusion reached, and recommendation on how the gaps or lapses identified by the study can be regulated. The researcher also made suggestions for further study on the subjects and other areas that the study exposes but was limited to, based on the outcome of the study.

5.2: Summary

Electronic media has been accepted globally as a major factor in pedagogical issues, where many western countries have made it compulsory for all teachers to undergo Information and Communication Technologies (ICT) certification, regardless of their subject area. This is done with the aim of improving performances of both teachers and learners. This study, assessment of the availability and utilization of electronic media in teaching social studies in colleges of education in North West Geo-Political Zone of Nigeria, had the following objectives, Determine the types of electronic media available in the colleges, to ascertain lecturers' and students' level of awareness of the available electronic resources in the colleges, assess the extent of utilization of electronic media by lecturers and students in the Colleges, identify the factors that influence lecturers' use of electronic media in the colleges and identify the major constraints in the use of electronic media in classroom pedagogy in the colleges of education in North-West Geo-political zone. Five (5) research questions and five (5) null hypotheses were formulated to arrive at conclusions on the research.

The literature reviewed various theories; different empirical works were also reviewed. The review showed that a number of people have undertaken researches into the availability and utilization of ICT at various levels of education including the Social Studies at the college of education level. The research adopted a survey method; it is a research design that is good for both small and large population. Questionnaires were designed that

sought information on particular area to facilitate a feedback. The responses were further subjected to statistical inferences that led to a decision on the inquiries made.

The study covered the seven (7) states of, Jigawa, Katsina, Kaduna, Kano, Kebbi, Sokoto and Zmfara, which made up the North West Geo-Political Zone of the Colleges of Education within the states mentioned. These states had a total of fourteen (14) Colleges of Education out of which four (4) are Federal, nine (9) are state owned, while one (1) is private. Out of the fourteen (14), only nine (9) colleges were purposefully sampled to represent the total population of the colleges namely, Federal College of Education, Kano, Federal College of Education, Katsina, Federal College of Education, Zaria, Adamu Augie College of Education, Argungu, College of Education, Gidan Waya, Jigawa State College of Education Gumel, Sa'adatu Rimi College of Education, Kano, Shehu Shagari College of Education, Sokoto and Zamfara State College of Education, Maru.

Out of each of the colleges, a sampled population of one thousand nine hundred and forty-one (1941) respondents comprising of one hundred and ninety-three (193) lecturers and one thousand seven hundred and forty-eight (1748) students was obtained out a total population of two hundred and thirteen (213) lecturers and five thousand and sixty nine (5069) students, totaling five thousand two hundred and eighty two (5282) being the total population. the sample was based on each institutions considered to be a study cluster and the sample of the population of each of the cluster was obtained using the Krejcie and Morgan guide for determining sample estimates. The values obtained from each cluster were added to obtain the total sample for the study.

Instruments used for data collection were a check list and structured questionnaires for the lecturers (EMAL) and for the students (EMAS). Frequency counts and percentages were used to explain the demographic data of the study. `Descriptive statistics were used in answering research questions. Based on the analysis of the findings, it was established that;

The lecturers in the federal and state colleges of education concurred that out of 18 enumerated electronic media devices required for the teaching and learning of social studies, only 7 were available and in good condition in the colleges. Most of the lecturers and students were not aware of the existence of some electronic devices. There was no effective utilization of electronic media by teachers and students in the teaching and learning of social studies. Loan to lecturers for the acquisition of electronic media was found to be the most significant factor that motivates lecturers to use electronic media. The colleges suffered from shortage of technical staff in the use of electronic media.

5.3: Conclusion

Based on the findings from the analysis of the data collected for this study and results of the tested hypotheses, the researcher concludes that, the required electronic media for the effective teaching and learning of Social Studies in colleges in North West Geo-Political Zone of Nigeria were not adequate; only a few of the supposed media were found to be available. The lack of adequate electronic media can be attributed to government lack of funding and encouraging lecturers through provision and training in electronic media facilities. Most colleges have just few and often obsolete materials. Training was also occasionally to some few.

In terms of utilization, the study confirms that, both lecturers and students do not effectively utilize the available electronic media in the process of teaching and learning of social studies. Underutilization can be as a result of lack personal or supply of the electronic media and utilizing personally or in classroom. It was also established that, lecturers were not motivated adequately in the use of the electronic media in teaching due to several factors. This can be attributed to lack of sponsorship to train in electronic media application and loans to acquire related electronic media for personal and classroom usage.

As a result of the findings, it was also established that, problems of human and material resources, and lack administrative policies regarding the use of electronic media for

the teaching and learning of social studies has been the major constraints in the application of electronic media devices in the process of teaching in the colleges of education.

5.4: Implications of Findings

The application of electronic media in teaching and learning can go a long way in improving the quality of teaching and enhance global awareness in terms of modern techniques. Internet and multimedia computers more specifically can expose learners to variety of knowledge in their areas of study. Social studies is a living subject and deals with entire mans environment that can be far away, the application of media can make such phenomena to be close as possible to students to see and learn about easily in classrooms by breaking the barriers of time and space. To both lecturers and students, searching for materials for research development and knowledge sharing is made easier through electronic media. The society has embraced electronic devices and relies much on it for socio economic pursuit, Governments have embraced it and encouraged the use in schools, international organizations and philanthropists also encouraged and support it.

The implications therefore are enormous, application of electronic media has become a global phenomenon, and no nation can afford to be left behind because the consequences are enormous. Finding from the current study was that, most of the electronic resources that were supposed to be in class were not adequately available, the few that were available were found to be underutilized. By implications it means most of the training was below the expected outcome and therefore teacher training in social studies lacks basic modern and global expectations. Lecturers were not also trained adequately in using electronic media for teaching social studies; most lecturers were therefore unable to utilize the materials for teaching. The long run effect will be training teachers that were under equipped to teach pupils that can face the global world of modern science and technology application in the teaching and learning process, and will be incompetent in their areas of interest compared to others.

5.5: Recommendations

From the analysis of the data collected for this study and result of the tested hypotheses, the following recommendations are made:

i. Stakeholders of colleges of education should as a matter for urgent importance provide necessary electronic media devices for the teaching and learning of Social Studies in the institutions.

ii. There is a need for in-house training and periodic orientation on the use of available electronic devices for the teaching and learning in the colleges. Students are to be exposed to available media in other relevant departments to complement the process.

iii. There is a need for an enabling policy on the use of electronic media, especially with pedagogical application in the teaching and learning of social studies.

iv. Stakeholders of the colleges should imbibe the use of motivational strategies for staff in the application of electronic media in the teaching and learning in the colleges.

v. There should be adequate provision of technical support and services, training and motivate the staff to use electronic media devices in classrooms.

5.6: Suggestions for Further Studies

Every research is an attempt to bring out a new dimension of knowledge, it is how ever often in-conclusive in itself, and there are always gaps to be filled in order to have a holistic view of the dimension in question. Therefore the following suggestions are made for further research by subsequent studies**.**

1. Incorporating other teacher training institutions like polytechnics and universities in future studies concerning effectiveness in teaching and learning using electronic media. National Certificate in Education (NCE) is not only awarded by Colleges of Education, incorporation of other relevant institutions will give a holistic view to the subject.
2. Comparison of availability and effective use of electronic media by lecturers and students of colleges of education in other geo-political zones of Nigeria. This is to give a

general picture to the concerned authority so as to generate a National solution to a National problem where there is deficiency.

3. Assessing of the influence of electronic media on students' performance can go along way in ascertaining the level and readiness of the students to be engaged in electronic media instruction. This can also give the authorities a clue on where to concentrate in training for the use of electronic resources.
4. A comparison between the rural and urban teacher training institutions in terms of availability and usage of electronic media and its outcome. This can assist authorities and individual lecturers to get adequate training so as to move in same pace with their counterparts.
5. Additional variables other than the ones used in this study could be explored further, these is to find out the various issues surrounding the effect of applying electronic media. New such areas are the use of social media such as, Face book, Whats app, Badoo, LinkedIn, BBM, Instagram, You tube, E-mail, Gmail, Tango and many other related social media.

5.7: Limitations of the study

The assessment here was limited to only Federal Colleges of Education in North West geopolitical zone of the country. The research was also limited to assessment of availability, and utilization of the available electronic media devices found in the colleges. Further studies could replicate the assessment in other colleges of education in other geo-political zones of the country or the nation at large there by covering a lot of areas and with more population so as to validate the outcome of the present study.

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Appendix I

Department of Fdn. & Curriculum Studies.
Faculty of Education,
Ahmadu Bello University Zaria,
March, 2014.

Dear Respondent.

I am a Ph. D student of the above named University undertaking a Research on; Availability and utilization of electronic media in the Teaching and Learning of Social Studies in Colleges of Education in North Western Nigeria.

Kindly go through the questionnaire objectively and indicate your views. I guarantee that all information supplied will be treated in strict confidentiality.

Thank you for the kind gesture.

Abubakar Aliyu Garba
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Department of Fdn. & Curriculum Studies.
Faculty of Education,
Ahmadu Bello University Zaria,
March, 2014.

Electronic Media Awareness for Lecturers, (EMAL)

Topic: Assessment of the availability and utilization of electronic media in the Teaching of Social Studies in Colleges of Education in Nigeria.

There are two sections; section A and B. Section A seeks background information of the respondents while section B contains items on the variables of the study.

Section A — Background Information on the respondents

1. Name of Institution: _____
2. Position: (please tick as appropriate 2-6)
    a. Dean
    b. Head of Department
    c. Coordinator (Computer Centre/CIT)
    d. Laboratory Attendant
3. Qualification/Ranking
    a. Chief Lecturer
    b. Principal Lecturer
    c. Senior Lecturer
    d. Lecturer I
    e. Lecturer II
    f. Lecturer III
    g. Assistant Lecturer
4. Department:
    a. Social Studies
    b. Others (specify) _____
5. Academic Qualification.
    a. PhD
    b. M.Ed, M.Sc
    c. B.Ed/B.Sc/B.A (Ed)
    d. Others (specify) _____
6. Working Experience:
    a. 1 - 5years
    b. 6- 10 years
    c. 11 - 15years
    d. 16 - 20 years
    e. 21 years and above

Appendix II

Section B. Check List

Indicate the level of availability by ticking the appropriate column for each item as it relates to your institution

S/N	List of electronic media for Teaching	Not available 1	Available not in good condition 2	Available and in good condition 3
7.	Electronic Board			
8.	Overhead Projector			
9.	Opaque Projector			
10.	Slide projector			
11.	Filmstrip			
12.	PC Projector			
13.	Multimedia Computer			
14.	Computer system			
15.	Internet/Web Environment			
16.	Television			
17.	Video			
18.	Radio			
19.	Cassette Recorder/ Player			
20.	Video Camera/ still Camera			
21.	Microphone/ Speaker system			
22.	Telephone /Intercom			
23.	Fax Machines			
24.	Fax Machines			

Section C*: Indicate whether you are aware of the availability of the following electronic media in your institution*

S/N	List of electronic media for Teaching	Aware	Not Aware
26.	Electronic Board		
27.	Overhead Projector		
28.	Opaque Projector		
29.	Slide projector		
30.	Filmstrip		
31.	PC Projector		
32.	Multimedia Computer		
33.	Computer system		
34.	Internet/Web Environment		
35.	Television		
36.	Video		
37.	Radio		
38.	Cassette Recorder/ Player		
39.	Video Camera/ still Camera		
40.	Microphone/ Speaker system		
41.	Telephone /Intercom		
42.	Fax Machines		

Section D: ***Tick (✓) the option that best describe the frequency you use electronic media in teaching***

S/N	Available electronic media	Used very often 4	Used often 3	Used on occasions 2	Not used at all 1
44.	Electronic Board				
45.	Overhead Projector				
46.	Opaque Projector				
47.	Slide projector				
48.	Filmstrip				
49.	PC Projector				
50.	Multimedia Computer				
51.	Computer system				
52.	Internet/Web Environment				
53.	Television				
54.	Video				
55.	Radio				
56.	Cassette Recorder/ Player				
57.	Video Camera				
58.	Microphone/ Speaker system				
59.	Telephone /Intercom				
60.	Fax Machines				

Section E: ***Tick the option that best describe the extent to which you agree with the statement as factors that influence lecturers to use of electronic media***

Note: The Response options are:

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

S/N	Factors Influencing Teachers' use of electronic media in Teaching	SA 1	A 2	D 3	SD 4
61.	Participating in seminars or taking courses in electronic media application				
62.	Technical support units in the schools to encourage the electronic media usage				
63.	Investments of the institution on infrastructure of instructional technology				
64.	Developing the policies and plans for diffusion of the instructional technology				
65.	Reduction of work load to provide opportunities for teachers to develop instructional materials.				
66.	Other agencies support teachers for training in electronic media for instruction.				
67.	Loans to teachers for acquisition of electronic media appliances.				
68.	Personal interest in electronic media usage				

Section F: ***Tick the option that best describe the extent to which you agree with the statement as barriers to the effective utilization of electronic media***

Note: The Response options are:

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

S/N	Barriers to effective utilization of electronic media resources	SA 4	A 3	D 2	SD 1
69.	Insufficient time to prepare electronic-based materials				
70.	Insufficient technical teachers' technical knowledge				
71.	Problems of accessibility to existing hardware (computer, overhead projector etc.)				
72.	Shortage of electronic media devices for effective use in teaching				
73.	Poor technical and physical infrastructure of learning environment.				
74.	Inadequate guidance and support in electronic media usage by institutions				
75.	Inadequate funding for electronic media integration				
76.	Inefficiency in the used of instructional software/electronic resources				
77.	Scarcity of resources on electronic media for obtaining information				
78.	Inadequate provision for professional development opportunities in electronic media				
79.	Lack of interest of teachers in electronic media usage				
80.	Ineffectiveness in erratic power supply areas.				
81.	High acquisition and maintenance cost of equipments				
82.	Believe in electronic media as propagator of social vices				
83.	Long time requires to master skills in the use of electronic media				
84.	Most electronic software easily becomes obsolete				

Appendix III
Students Questionnaire

Department of Fdn. & Curriculum Studies.
Faculty of Education,
Ahmadu Bello University Zaria,
May, 2014.

Electronic Media Awareness for Students, (EMAS)

Topic: Assessment of the availability and utilization of electronic media in the Teaching of Social Studies in Colleges of Education in Nigeria.

There are two sections; section A and B. Section A seeks background information of the respondents while section B contains items on the variables of the study.

Section A — Background Information on the respondents

1. Name of Institution: _____
2. Status: Federal b. State
3. Level
    a. N.C.E I
    b. N.C.E II
    c. N.C.E. III

4. Department:
    c. Social Studies
    d. Others (specify) _____

Section B

Indicate whether you are aware of the availability of the following electronic media in your institution

S/N	List of electronic media for Teaching	Aware	Not Aware
85.	Electronic Board		
86.	Overhead Projector		
87.	Opaque Projector		
88.	Slide projector		
89.	Filmstrip		
90.	PC Projector		
91.	Multimedia Computer		
92.	Computer system		
93.	Internet/Web Environment		
94.	Television		
95.	Video		
96.	Radio		
97.	Cassette Recorder/ Player		
98.	Video Camera/ still Camera		
99.	Microphone/ Speaker system		
100.	Telephone /Intercom		
101.	Fax Machines		

Section C: ***Tick (✓) the option that best describe the frequency your lecturer use the following electronic media in teaching***

S/N	Available electronic media	Used very often 4	Used often 3	Used on occasions 2	Not used at all 1
102.	Electronic Board				
103.	Overhead Projector				
104.	Opaque Projector				
105.	Slide projector				
106.	Filmstrip				
107.	PC Projector				
108.	Multimedia Computer				
109.	Computer system				
110.	Internet/Web Environment				
111.	Television				
112.	Video				
113.	Radio				
114.	Cassette Recorder/ Player				
115.	Video Camera				
116.	Microphone/ Speaker system				
117.	Telephone /Intercom				
118.	Fax Machines				

Appendix IV

Instructional Manual for Research Assistants'

Two (2) separate questionnaires, for lecturers' (EMAL) and for students (EMAS) both questionnaires are to be filled as instructed in the attached letter to the questionnaires. There are sections A-F in the EMAL and sections A-C in the EMAS.

Section A of EMAL consist of background information of the respondents as shown below…with examples…..as;

1. Name of Institution: Federal College of Education, Kano
2. Position: (please tick as appropriate 2-6)
    e. Dean √
    f. Head of Department
    g. Coordinator (Computer Centre/CIT)
    h. Laboratory Attendant
3. Qualification/Ranking
    h. Chief Lecturer
    i. Principal Lecturer
    j. Senior Lecturer
    k. Lecturer I √
    l. Lecturer II
    m. Lecturer III
    n. Assistant Lecturer

4. Department:
    e. Social Studies √
    f. Others (specify) _____

5. Academic Qualification.
    e. PhD
    f. M.Ed, M.Sc √
    g. B.Ed/B.Sc/B.A (Ed)
    h. Others (specify) _____

6. Working Experience:
    f. 1 - 5years
    g. 6- 10 years
    h. 11 - 15years √
    i. 16 - 20 years
    j. 21 years and above

Appendix V A
Result of the reliability test for the lecturers' questionnaire

Cronbach's Alpha	Part 1	Value	0.96
		N of Items	45(a)
	Part 2	Value	0.89
		N of Items	44(b)
	Total N of Items		89.0
Correlation Between Forms			0.66
Spearman-Brown Coefficient	Equal Length		0.80
	Unequal Length		0.80
Guttman Split-Half Coefficient			0.78

a The items are: SECTIONB1, SECTIONB2, SECTIONB3, SECTIONB4, SECTIONB5, SECTIONB6, SECTIONB7, SECTIONB8, SECTIONB9, SECTIONB10, SECTIONB11, SECTIONB12, SECTIONB13, SECTIONB14, SECTIONB15, SECTIONB16, SECTIONB17, SECTIONB18, SECTIONB19, SECTIONB20, SECTIONB21, SECTIONB22, SECTIONB23, SECTIONB24, SECTIONB25, SECTIONB26, SECTIONB27, SECTIONB28, SECTIONB29, SECTIONB30, SECTIONB31, SECTIONB32, SECTIONB33, SECTIONC1, SECTIONC2, SECTIONC3, SECTIONC4, SECTIONC5, SECTIONC6, SECTIONC7, SECTIONC8, SECTIONC9, SECTIONC10, SECTIONC11, SECTIONC12.

b The items are: SECTIONC13, SECTIONC14, SECTIONC15, SECTIONC16, SECTIONC17, SECTIONC18, SECTIONC19, SECTIONC20, SECTIONC21, SECTIONC22, SECTIONC23, SECTIONC24, SECTIONC25, SECTIONC26, SECTIONC27, SECTIONC28, SECTIONC29, SECTIONC30, SECTIONC31, SECTIONC32, SECTIONC33, SECTIONC34, SECTIONC35, SECTIONC36, SECTIONC37, SECTIONC38, SECTIONC39, SECTIONC40, SECTIONC41, SECTIONC42, SECTIONC43, SECTIONC44, SECTIONC45, SECTIONC46, SECTIONC47, SECTIONC48, SECTIONC49, SECTIONC50, SECTIONC51, SECTIONC52, SECTIONC53, SECTIONC54, SECTIONC55, SECTIONC56.

Appendix V B

Result of the reliability test for the students' questionnaire

Cronbach's Alpha	Part 1	Value	0.96
		N of Items	17(a)
	Part 2	Value	0.98
		N of Items	16(b)
	Total N of Items		33.0
Correlation Between Forms			0.54
Spearman-Brown Coefficient	Equal Length		0.70
	Unequal Length		0.70
Guttman Split-Half Coefficient			0.66

a The items are: SECTIONB1, SECTIONB2, SECTIONB3, SECTIONB4, SECTIONB5, SECTIONB6, SECTIONB7, SECTIONB8, SECTIONB9, SECTIONB10, SECTIONB11, SECTIONB12, SECTIONB13, SECTIONB14, SECTIONB15, SECTIONB16, SECTIONB17.

b The items are: SECTIONB18, SECTIONB19, SECTIONB20, SECTIONB21, SECTIONB22, SECTIONB23, SECTIONB24, SECTIONB25, SECTIONB26, SECTIONB27, SECTIONB28, SECTIONB29, SECTIONB30, SECTIONB31, SECTIONB32, SECTIONB33.

Appendix V C

Colleges of Education in North Western Nigeria

S/N	NAME OF COLLEGE	LOCATION	STATUS
1.	Adamu Augie College of Education	Argungu, Kebbi State	State
2.	College of Education, Gidan Waya	Kafanchan, Kaduna State	State
3.	College of Education, Maru	Maru, Zamfara State	State
4.	Federal College of Education, (Technical) Bichi	Bichi, Kano State	Federal
5.	Federal College of Education, (Technical, fAEMLe only) Gusau	Gusau, Zamfara State	Federal
6.	Federal College of Education, Kano	Kano, Kano State	Federal
7.	Federal College of Education, Katsina	Katsina, Katsina State	Federal
8.	Federal College of Education, Zaria	Zaria, Kaduna State	Federal
9.	Isah Kaita College of Education,	Dutsin Ma, Katsina State	Federal
10.	Jigawa State College of Education	Gumel, Jigawa State	State
11.	College of Education, kumbotso	Kumbotso, Kano State	State
12.	Shehu Shagari College of Education	Sokoto, Sokoto State	State
13.	Yusuf Bala Usman College of Legal and Preliminary Studies	Daura, Katsina State	State
14.	Jama'atu Nasurul Islam	Kaduna, Kaduna State	Private

Source: NCCE 2011

APPENDIX VI

Required Sample Size

Population Size	Confidence = 95% Margin of error 5.0%	3.5%	2.5%	1.0%	Confidence = 99% Margin of Error 5.0%	3.5%	2.5%	1.0%
10	10	10	10	10	10	10	10	10
20	19	20	20	20	19	20	20	20
30	28	29	29	30	29	29	30	30
50	44	47	48	50	47	48	49	50
75	63	69	72	74	67	71	73	75
100	80	89	94	99	87	93	96	99
150	108	126	137	148	122	135	142	149
200	132	160	177	196	154	174	186	198
250	152	190	215	244	182	211	229	246
300	169	217	251	291	207	246	270	295
400	146	265	318	384	250	309	348	391
500	217	306	377	475	285	365	421	485
600	234	340	432	565	315	416	490	579
700	248	370	481	653	341	462	554	672
800	260	396	526	739	363	503	615	763
1,000	278	440	606	906	399	575	727	943
1,200	291	474	674	1,067	427	636	827	1,119
1,500	306	515	759	1,297	460	712	959	1,376
2,000	322	563	869	1,655	498	808	1,141	1,785
2,500	333	597	952	1,984	524	879	1,288	2,173
3,500	346	641	1,068	2,565	558	977	1,510	2,890
5,000	357	678	1,176	3,288	586	1,066	1,734	3,842
7,500	365	710	1,275	4,211	610	1,147	1,960	5,165
10,000	370	727	1,332	4,899	622	1,193	2,098	6,239
25,000	378	760	1,448	6,939	646	1,285	2,399	9,972
50,000	381	772	1,491	8,056	655	1,318	2,520	12,455
75,000	382	776	1,506	8,514	658	1,330	2,563	13,583
100,000	383	778	1,513	8,762	659	1,336	2,585	14,227
250,000	384	782	1,527	9,248	662	1,347	2,626	15,555
500,000	384	783	1,532	9,423	663	1,350	2,640	16,055
1,000,000	384	783	1,534	9,512	663	1,352	2,647	16,317
2,500,000	384	783	1,536	9,567	663	1,353	2,651	16,478
10,000,000	384	784	1,536	9,594	663	1,354	2,653	16,560
100,000,000	384	784	1,537	9,603	663	1,354	2,654	16,584
300,000,000	384	784	1,537	9,603	663	1,354	2,654	16,586

APPENDIX VII

ADDRESSES OF APPROVED NCE-AWARDING INSTITUTIONS BY YEAR OF ESTABLISHMENT AS AT DECEMBER, 2013
FEDERAL COLLEGES OF EDUCATION

S/No	Name of College	Address and Location	Year of Establishment
1	FCE Abeokuta	PMB 2096, Abeokuta, Ogun State	1976
2	FCE (T) Akoka	P.O. Box 269, Lagos, Lagos State	1967
3	FCE (T) Asaba	PMB 1044, Asaba, Delta State	1986
4	FCE (T) Bichi	PMB 3473, Bichi, Kano State	1988
5	FCE Eha-Amufu	PMB 2001, Eha-Amufu, Enugu State	1981
6	FCE (T) Gombe	PMB 60, Gombe, Gombe State	1986
7	FCE (T) Gusau	PMB 1088, Gusau, Zamfara State	1986
8	FCE Kano	PMB 3045, Kano, Kano Sate	1965
9	FCE Katsina	PMB 2041, Katsina, Katsina State	1976
10	FCE Kontagora	PMB 39, Kontagora, Niger State	1986
11	FCE Obudu	PMB 1038, Obudu Cross River State	1986
12	FCE Okene	PMB 1026, Okene, Kogi State	1974
13	FCE (T) Omoku	PMB 11, Omoku, Rivers State	1986
14	Adevemi COE Ondo	PMB 520, Ondo, Ondo State	1964
6	COE, Arochukwu	PMB 1000, Arochukwu, Abia State	1993
7	COE, Azare	PMB 44, Azare, Bauchi State	1977
8	Umar IBN Ibrahim Elkanemi COE,Bama	PMB 16, Bama, Borno State	1987
9	Isa Kaita COE, Dutsin Ma	PMB 49, Dutsin-Ma, Katsina State	1991
10	COE, Ekiadolor	PMB1144, Benin, Edo State	1988
11	COE, Gashua	PMB 02, Gashua, Yobe State	1988
12	Kaduna State COE, Gidan Waya	PMB 1024, Gidan Waya, Kaduna State	1978
13	COE, Gindiri	PMB 1000, Gindiri, Plateau State	1980
14	COE, Gumel	PMB 1002, Gumel, Jigawa State	1987
15	COE, Hong	PMB 2237, Hong, Adamawa State	1982
16	COE, Ikere Ekiti	PMB 250, Ikere Ekiti, Ekiti State	1977
17	COE, Ila-Orangun	PMB 207, Ila-Orangun, Osun State	1988
18	COE, Ilesa	PMB 5089, Ilesa, Osun State	1977
19	COE, Ilorin	PMB 1375, Ilorin, Kwara State	1974
20	COE, Zing	PMB 1021, Jalingo, Taraba State	1978
21	COE, Katsina-Ala	PMB 2008, Katsina-Ala, Benue State	1979
22	COE, Kumbotsho	PMB 3218, Kumbotso, Kano State	1981
23	COE, (T) Lafiagi	PMB 01, Lafiagi, Kwara State	1993
24	Kashim Ibrahim COE,	PMB 1469, Maiduguri, Borno State	1978
25	COE, Maru	PMB 1002, Maru,Zamfara State	2001
26	COE, Minna	PMB 39, Minna, Niger State	1978

40	Ebonyi State COE (T), Ikwo	PMB 002, Ikwo, Ebonyi State	2001
41	Enugu State COE (T), Enugu	PMB 01793, Abakaliki Rd, Enugu State	2006
42	Tai Solarin College of Education, Ijebu-Omu	Ijebu-Omu, Ogun State	1977
43	Cross River State College of Education, Akamkpa	PMB 1171, Akamkpa, Calabar, (Re-established), C/River State	2008
44	Bayelsa State COE, Okpoma	P.M.B. 74, Yenagoa, Bayelsa State	2010
45	YBUCLGS, Daura	PMB 2201, Daura, Katsina, Katsina State	2004

PRIVATE COLLEGES OF EDUCATION

S/NO	Name of College	Address and Location	Year of Establishment
1	Institute of Ecumenical Education (Thinkers Corner), Enugu	P.O. Box 2001, Enugu, Enugu State	2004
2	Jama'atu Nasril Islam COE, Kaduna	P.O. Box 96, Kaduna, Kaduna State	1997
3	OSISA Tech COE, Enugu	PMB 1161, Enugu, Enugu State	2001
4	St. Augustine COE, Akoka, Lagos	PMB 1140, (Project Time), 2 Morofolu Str., Akoka, Lagos.	1975
5	African Thinkers Community of Inquiry COE, Enugu	PMB 15510, Enugu, Enugu State	2004
6	Ansar-Ud-Deen COE, Isolo	6 Karimu Street, Isolo, Lagos, Lagos State	2004
7	Delar COE, Ibadan	PMB 6379, Ibadan, Oyo State	2003
8	Muftau Lanihun COE, Ibadan	PMB 2705, Agodi Gate, Ibadan, Oyo State.	2003
9	Harvard Wilson COE, Aba	P.O. Box 5216, Aba, Abia State	2004
10	City College Of Education, Mararaba	P.O. Box 3094, Garki –Abuja	2003
11	Muhyideen COE, Ilorin	13, Idiorombo Lane, P.O. Box 370, Ilorin, Kwara State	2008
12	College of Education, Ilemona	P. O. Box 433, Osunte Rd, Offa Kwara State	2006
13	Bauchi Institute of Arabic & Islamic Studies, Bauchi	Bakari Duku Pry Sch, Bauchi, Bauchi State. P.O. Box 2031	2005
14	Corner Stone College of Education, Ikeja	Jones Avenue, Ikeja, Lagos State	2006
15	All States College of Education, Ero	Ero, Akure, Ondo State	2006
16	African Church COE, Agege	P.M.B. 21112, Agege, Lagos State.	2008
17	Assanusiya COE, Odeomu	P.M.B. 2002, Odeomu, Osun State.	2005
18	Best Legacy College Of Education, Ogbomosho	Oke – Owode Ikirun Road, Ogbomosho.	2007
19	Yewa Central College of Education, Abeokuta	P.M.B. 2014, Abeokuta, Ogun State	2003
20	Calvin Foundation COE, Makurdi	P.O Box 2744, Makurdi	2000
21	College of Education, Nsukka	P.M.B. 2003, Nsukka, Enugu State	2008
22	UCOE, Aukpa -Adoka	Aukpa – Adoka, Benue State	2007
23	Hill COE, Akwanga	P.O.Box 2399 Gwanje, Akwanga, Nasarawa State	2010
24	COE, Igueben	P.M.B. 003, Igueben, Edo State	2006
25	Kingsley College of Education, Ilorin	No 11 Olorunsogo Ilorin, Kwara State	2010

26	Apa COE, Aidogodo-Okpoga	Aidogodo – Okpoga, Benue State	2010
27	Awori District COE, Otta	Ajibode, Sango Otta	2010
28	Nana Aishat Memorial COE, Ilorin	Alagbado, Ilorin, Kwara State	2009
30	Angel Crown COE, Gidan Daya	Km 11, Karshi Road, Gidan Daya, F.C.T Abuja.	2010
31	Topmost COE, Agbado	19/21 Alaja Browwe Street Ipaja, Lagos State	2000
32	Royal City COE, Iyesi	Iyesi, Otta, Ogun State	2010
33	Onit COE, Abagana	P.O Box 677 A bagana, Anambra State	2010
34	Elder Oyama Memorial COE, Ofat	P.O Box 32, Ofat, Obubura, Cross River State	2010
35	College Of Education, Moro	P.O. Box 1964, Ile -Ife, Osun State	2010
36	Jibwis College Of Arabic & Islamic Education, Gombe.	Gombe, Gombe State.	2010
37	Institute Of Arabic & Islamic Studies, Olodo	P.O Box 3346, Olodo, Ibadan, Oyo State	2010
38	Al Hikima College of Education, Ankpa	P.O. Box 48, Ankpa, Kogi State	2011

OTHER NCE-AWARDING INSTITUTIONS

S/No	**Name of Institution**	**Address and Location**	**Year of Establishment**
1	National Teachers Institute, Kaduna	P.M.B 2191, Kaduna, Kaduna State	1978
2	Nigeria Army School Of Education, Ilorin	P.M.B. 1410, Ilorin, Kwara State	1987
3	Hassan Usman Katsina Polytechnic, Katsina	P.M.B. 2052, Katsina, Katsina State	1983
4	Plateau State Polytechnic, Barkin Ladi	P.M.B 02023, Barkin Ladi, Jos Plateau State	1978
5	Kano State Polytechnic, Kano	BUK Road, Kano, Kano State	1976
6	Waziri Umaru Federal Polytechnic, Birnin Kebbi	Birnin Kebbi, Kebbi State	1976
7	Ramat Polytecnic, Maiduguri	P.M.B. 1070, Maiduguri, Borno State	1978
8	Kaduna Polytechnic, Kaduna	P.M.B. 2021, Kaduna, Kaduna State	1956
9	AbubakarTatari Polytechnic, Bauchi	P.O Box 094, Bauchi, Bauchi State.	1992

NATIONAL COMMISSION FOR COLLEGES OF EDUCATION, ABUJA
SUMMARY OF STUDENT ENROLMENT BY STATE OF ORIGIN AND SEX 2012/2013 SESSION

S/NO	STATE	STUDENT ENROLMENT		FEMALE PARTICIPATION RATE (%)
		MF	F	
1	ABIA	2744	1955	71.25
2	ADAMAWA	10110	4047	40.03
3	AKWA-IBOM	3811	2807	73.66
4	ANAMBRA	5896	4607	78.14
5	BAUCHI	7976	2777	34.82
6	BAYELSA	1299	730	56.20
7	BENUE	24054	10546	43.84
8	BORNO	6421	2406	37.47
9	CROSS RIVER	9637	5477	56.83
10	DELTA	11251	8034	71.41
11	EBONYI	2839	1670	58.82
12	EDO	7433	5256	70.71
13	EKITI	6336	4244	66.98
14	ENUGU	7056	5625	79.72
15	GOMBE	6595	2757	41.80
16	IMO	6986	5332	76.32
17	JIGAWA	18563	4724	25.45
18	KADUNA	6339	2988	47.14

NATIONAL COMMISSION FOR COLLEGES OF EDUCATION, ABUJA
SUMMARY OF ACADEMIC STAFF BY INSTITUTION, STATE, SEX AND FEMALE PARTICIPATION RATE 2012/2013 SESSION

S/NO	STATE	ACADEMIC STAFF DISTRIBUTION		FEMALE PARTICIPATION RATE (%)
		MF	F	
1	ABIA	377	156	41.38
2	ADAMAWA	396	98	24.75
3	AKWA-IBOM	273	98	35.90
4	ANAMBRA	487	279	57.29
5	BAUCHI	340	48	14.12
6	BAYELSA	317	94	29.65
7	BENUE	993	188	18.93
8	BORNO	468	136	29.06
9	CROSS RIVER	383	61	15.93
10	DELTA	815	331	40.61
11	EBONYI	203	28	13.79
12	EDO	458	166	36.24
13	EKITI	568	199	35.04
14	ENUGU	424	150	35.38
15	GOMBE	259	50	19.31
16	IMO	786	413	52.54
17	JIGAWA	258	26	10.08
18	KADUNA	888	224	25.23
19	KANO	1098	270	24.59
20	KATSINA	515	81	15.73
21	KEBBI	292	54	18.49
22	KOGI	720	168	23.33
23	KWARA			