# EVALUATION OF AVAILABILITY, ORGANIZATION AND UTILIZATION OF MULTIMEDIA RESOURCES FOR TEACHING SOCIAL STUDIES IN COLLEGES OF EDUCATION IN NORTH-CENTRAL NIGERIA

**BY**

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**A DISSERTATION SUBMITTED TO THE SCHOOL OF POSTGRADUATE STUDIES, AHMADU BELLO UNIVERSITY, ZARIA IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DOCTOR OF PHILOSOPHY DEGREE IN SOCIAL STUDIES EDUCATION,**

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## DECLARATION

I hereby declare that this thesis entitled "Evaluation of Availability, Organization and Utilization of Multimedia Resources for Teaching Social Studies in Colleges of Education in North-Central Nigeria" has been carried out by me in Department of Arts and Social Science Education under the supervision of Dr. H.I.R Bayero,Dr. I.D Abubakar and Prof.M. Musa. The information derived from the literature has been duly acknowledged to the best of my knowledge in the text and a list of references provided. No part of this thesis was previously presented for another Degree at any university.

..... .....

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## CERTIFICATION

This thesis entitled “Evaluation of Availability, Organization and Utilization of Multimedia Resources for Teaching Social Studies in Colleges of Education in North-Central Nigeria” by Aminu MUHAMMEDmeets the regulations governing the award of the Degree of Doctoratein Social Studies Educationof Ahmadu Bello University and is approved for its contribution to knowledge and literary presentation.

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## DEDICATION

This research is dedicated to my parent Mallam Muhammad KoloWushishi (Late), MallamaHauwa'uKulu Muhammad KoloWushishi and the entire members of my family.

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## ABSTRACT

The study examined the Evaluation of Availability, Organization and Utilization of Multimedia Resources for Teaching Social Studies in Colleges of Education in North-Central Nigeria. The study is guided by six specific objectives, six corresponding research questions null hypotheses. However, the study used male and female lecturers of Social Studies selected from state and federal colleges of education in the study are (north-central, Nigeria). Furthermore, survey research design is used. The study used census purposive sampling because of the manageability of the population of the study. The study also used structured questionnaire titled "Availability, Organization and Utilization of Multimedia Resources Questionnaire (AOUMREQ) as data collection instrument. The instrument is validated by supervisors and statisticians for content and face values. The study pilot tested the instrument and it is certified as statistically fit for the main work. However, the study used independent samples t-test to validate the study's null hypotheses and arithmetic mean, standard deviation to answer the research questions. The study among other thing discovered that there is no significant difference in the opinions of male and female respondents (Lecturers) on the availability of multimedia resources for effective teaching of Social Studies in colleges of education in North-Central Zone and no significant difference in the opinions of male and female respondents (Lecturers) on the organization of multimedia resources for effective teaching of Social Studies in colleges of education in North-Central Zone. the study made some recommendations among which are the Federal Government through its agencies like National Commission for Colleges of Education (NCCE), TETFUND and the likes should organize more workshop, seminar and in-house training for its academic staff in colleges of education to widen their awareness, organization and effective utilization of multimedia resources the utilization of multimedia resources can be improved by providing virtual libraries with uninterrupted internet facilities and power supply. This will assists Social Studies Lecturers to access these resources at no cost.

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## ABBREVIATIONS

| | |
|---|---|
| ICT: | Information and Communication Technology |
| OECD: | Organization for Economic Cooperation and Development |
| NCCE: | National Commission for Colleges of Education |
| FRN: | Federal Republic of Nigeria |
| NCSS: | National Council of the Social Studies |
| SOSAN: | Social Studies Association of Nigeria |
| SOSCEAN: | Social Studies and Civic Educators Association of Nigeria |
| NERC: | Nigeria Education Research Council |
| PGDE: | Post Graduate Diploma in Education |
| NCE: | Nigeria Certificate in Education |
| NERDC: | Nigerian Educational Research and Development Council |
| JCC: | The Joint Consultative Committee |
| AVAs: | Audiovisual Aids |
| CD: | Compact Disc |
| MAT: | Multimedia-Assisted Teaching |
| MAT: | Multimedia-Aided Teaching |

SOSIMP: Social Studies Interactive Multimedia Package

SOSCOLM: Social Studies Conventional Lecture Method

SSAT: Social Studies Achievement Test

IMI: Interactive Multimedia Instruction

OER: Open Educational Resources

AOUMREQ: Availability, Organization and Utilization of Multimedia Resources Questionnaire

# CHAPTER ONE

# INTRODUCTION

## 1.1 Background to the Study

The availability, effective organization and utilization of multimedia resources by a qualified Social Studies teacher putting into consideration the topic to be taught and the students' level and ability are the starting point and foundation for attaining effective interaction and communication between teacher and students in Social Studies classroom. For the success or failure of Social Studies lessons depends on the choice, organization and utilization of multimedia resources by the social studies teacher. Integration of multimedia resources into instructional process can help to reduce curriculum barriers and improve learning for all students.

The introduction of Information and Communication Technology (ICT) in teaching remains one of the important dimensions of human technological advances in contemporary times. It is regarded as one of the main innovations in the education sector due to the fact that it has the potential to bring about substantial system-wide benefits in terms of improving the quality of teaching and learning process. In the light of this, Abdallah (2013) stated that there is of course a need to emphasize the added value that ICT can bring about to teaching and learning and that effort should be geared towards effective development of learning resources. The renewed interest and the euphoria in ICT today might have been borne out of the fact that Nigeria does not want to lag behind in the global race that is basking or being controlled by the upsurge of ICT revolution in all aspects of life including education. Many countries around the world have introduced Information and Communication Technologies (ICTs) into schools via different courses of action. Their use is also underlined by Organization for Economic Cooperation and

Development [OECD] (2001) as a necessity for improving quality in teaching and learning. Technologies such as multimedia are seen to have special significance for teacher education because of the growing expectation that teachers must be technologically literate in order to provide relevant instruction in schools. Many scholars argued that it is the responsibility of teacher education programme to produce students who are confident and competent users of technology. Because students needed to see technology modelled for them by their teachers (Davis, Willis, Fulton, & Austin, 1995), teacher educators faced mounting pressure to be skilled in the use of a range of technologies in order that these skills are passed on to prospective teachers in school systems. Interactive multimedia resources are examples of these technologies.

The term multimedia means more than one media. Multimedia are instructional programmes that can be highly interactive and feature combinations of sound, animation, video, graphics, and text. According to Hostetler (2001), "Multimedia is the use of computer to present and combine text, graphics, audio and video with links and tools that let the user navigate, interact, create and communicate". In other words, multimedia is the combination of various digital media, into an integrated multi-sensory interactive application or presentation to convey information to an audience, (Butcher and Powell 2005; Demodharan and Rengaranjan 2007). Therefore, multimedia is a learning tool that allows learners to organize, represent and construct knowledge in multiple modalities that include text, audios, graphics, animation and videos, (Wang 2006: 316). In addition, multimedia programmes do not necessarily require Internet access.

Other than that, interactivity is also part of the elements that are required in order to compel interactive communication process through the use of multimedia. This involves

combination of visual materials. It is considered therefore as a learning resource package which can be effective when several media are used concurrently for specific instructional purpose. When two or more pictures are projected simultaneously, on one or more screen 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 for self-paced learning package, the term multimedia is used. In this regard, in using multimedia or multi-image, a large amount of information can be passed across to students, and high interest can be created in students. Furthermore, media can be tailored towards different objective outlined for the lesson. Multimedia can be effectively used for instructional purposes, (Burden & Byrd, 1999). The use of multimedia in teaching and learning Social Studies is not only able to maintain students' interest but also able to make them enjoy learning. Furthermore, Cairn-cross and Mansion (2001) pointed out that multimedia has the potential to create high quality learning environments.

With multimedia technology becoming such an integral part of students' lives, educators are incorporating it into projects to promote learning in their classrooms. The trend toward technology enhanced classrooms has escalated quickly at the turn of the millennium in Nigeria and students are increasingly becoming tech-savvy day by day. Students are using multimedia to connect with different cultures and societies that can broaden their learning experience, (Warschauer, 1999). Technology provides an innovative way to reach and collaborate with students and educators all over the world. However, not only is technology useful in communicating with others, it also provides unique ways to complete assignments. Additionally, students learn better and faster when

they are actively engaged in their learning. Digital media can be a great vehicle for student engagement with classroom technology…", (Quinones, 2010:28).

Social Studies as a field of study is not excluded in whatever effects ICT is making in the educational arena. Technology's capacity to reach learners in any place and at any time has the potential to promote revolutionary changes in the educational paradigm. This means eliminating the premise that learning time equals classroom time. Students can be encouraged to revisit the lessons/topics to reinforce learning without active intervention by teachers,(Dania & Enakrire 2012). Buttressing on the above, Mezieobi (2013) posits that ICT has made possible effective Social Studies instruction by institutionalized electronic field trip among others. According to Acikalin & Duru (2005), special attention has been given to the adaptation of computer technology into teaching-learning process for effective learning and increasing students' achievement. In recent years, it has been realized that there is an immense benefit in applying computer technology in the Social Studies classroom. There is an increasing research on the effectiveness and benefits of the integrating computer technology in education in recent years. Sheffield (1996) stated that as a result of the recent developments in technology, computers and the Internet have become more important teaching tools in the Social Studies classroom. In addition, Whitworth & Berson (2003) point out that, "within the Social Studies, technology has served a dual role as an important instructional tool that may have a significant effect on the global, political, social, and economic functioning of society". According to Whitworth and Berson (2003), as a method or topic instruction, computers and technology may have significant impacts on Social Studies Education.

As new concepts of learning have evolved, teachers are expected to facilitate learning and make it meaningful to individual learners rather than just to provide knowledge and skills. Modern developments of innovative technologies has provided new possibilities for teaching

professions, but at the same time have placed more demands on teacher to learn how to use these new technologies in their teaching, (Robinson and Latchem, 2003). These challenges posit, Carlson and Gadio (2002), ask teacher to continuously retrain themselves and acquire new knowledge and skills while maintaining their job.

Despite the fact that Nigeria has accepted ICT as an innovation that should be incorporated, as an integral part into our instructional delivery system in all school subjects including Social Studies, it is lamentable that a number of factors have beset the effective organization and utilization of multimedia resources toward teaching and learning Social Studies in Nigeria's Colleges of Education. While many writers blamed conservative or negative faculty attitudes (Murphy, 1994; Benavides & Surry, 1995; Massy & Zemsky, 1995; Forgo & Koczka, 1996; Heron, 1996), some studies revealed that technology use is impeded by a range of factors including lack of time, training, equipment, resources and higher managerial support, (Spotts & Bowman, 1993; Wetzel, 1993; Davis, Willis, Fulton & Austin, 1995; Lyons & Carlson, 1995; Spotts & Bowman, 1995). In addition, research in Australia, the United Kingdom and the United States suggested that lack of recognition, rewards or incentives may be hindering technology use, (Davis et al., 1995; Hesketh et al., 1996; Ramsden & Martin, 1996; Willis et al., 1995). This is true to Nigerian situation especially in Colleges of Education where prospective teachers are trained.

Nonetheless, it is quite disturbing that the fact that ICT facilities (multimedia resources) are in gross short supply particularly in some Colleges of Education and there is dearth of Social Studies teachers versed in the knowledge of the usage and application of ICT. The few that have the knowledge do not often utilize it for teaching and learning purposes. The government has not demonstrated adequate commitment to ICT infrastructure (multimedia inclusive) provision

in Nigeria's tertiary institutions. At best governments in Nigeria are mouthing ICT without adequately funding it to engineer ICT revolution in the classroom.

## 1.2 Statement of the Problem

The current teaching strategies in Social Studies in Nigeria's Colleges of Education have failed to enhance problem-solving skills, curiosity, and critical and logical thinking among students. There is a need to move from traditional approaches to more innovative Information and Communications Technologies (ICTs) enriched approaches for meaningful learning. The fast-paced, diverse, and technologically advanced world has posed challenges for both teachers and students. It is against this background that this study evaluated the availability, organization and utilization of multimedia resources for teaching Social Studies in colleges of education in North-Central Zone, Nigeria.

## 1.3 Objectives of the Study

The main objective of this study is to evaluate the Availability, Organization and Utilization of Multimedia Resources for teaching Social Studies in Colleges of Education in North-Central Zone, Nigeria. The study is guided by the following specific objectives:

i. To determine the opinions of male and female Lecturers on the Availability of Multimedia Resources for effective teaching of Social Studies in colleges of education in North-Central Zone;

ii. To examine the opinions of male and female Lecturers on the Organization of Multimedia Resources for effective teaching of Social Studies in colleges of education in North-Central Zone;

iii. To find out the opinions of male and female Lecturers on the Utilization of Multimedia Resources for effective teaching of Social Studies in colleges of education in North-Central Zone;

iv. To ascertain the opinions of state and federal college lecturers on the Availability of Multimedia Resources for effective teaching of Social Studies in colleges of education in North-Central Zone;

v. To investigate the opinions of state and federal college lecturers on the Organization of Multimedia Resources for effective teaching of Social Studies in colleges of education in North-Central Zone;

vi. To ascertain the opinions of state and federal college lecturers on the Utilization of Multimedia Resources for effective teaching of Social Studies in colleges of education in North-Central Zone.

### 1.4 Research Questions

The study answers the following questions:

i. What is the difference in the opinions of male and female Lecturers on the Availability of Multimedia Resources for effective teaching of Social Studies in colleges of education in North-Central Zone?

ii. What is the difference in the opinions of male and female Lecturers on the Organization of Multimedia Resources for effective teaching of Social Studies in colleges of education in North-Central Zone?

iii. What is the difference in the opinions of male and female Lecturers on the Utilization of Multimedia Resources for effective teaching of Social Studies in colleges of education in North-Central Zone?

iv. What is the difference in the opinions of state and federal college Lecturers on the Availability of Multimedia Resources for effective teaching of Social Studies in colleges of education in North-Central Zone?

v. What is the difference in the opinions of state and federal college Lecturers on the Organization of Multimedia Resources for effective teaching of Social Studies in colleges of education in North-Central Zone?

vi. What is the difference in the opinions of state and federal college Lecturers on the Utilization of Multimedia Resources for effective teaching of Social Studies in colleges of education in North-Central Zone?

**1.5 Research Hypotheses**

In the light of the above, the following hypotheses are formulated for the study:

i. There is no significant difference in the opinions of male and female Lecturers on the Availability of Multimedia Resources for effective teaching of Social Studies in colleges of education in North-Central Zone;

ii. There is no significant difference in the opinions of male and female Lecturers on the Organization of Multimedia Resources for effective teaching of Social Studies in colleges of education in North-Central Zone;

iii. There is no significant difference in the opinions of male and female Lecturers on the Utilization of Multimedia Resources for effective teaching of Social Studies in colleges of education in North-Central Zone;

iv. There is no significant difference in the opinions of state and federal college Lecturers on the Availability of Multimedia Resources for effective teaching of Social Studies in colleges of education in North-Central Zone;

v. There is no significant difference in the opinions of state and federal college Lecturers on the Organization of Multimedia Resources for effective teaching of Social Studies in colleges of education in North-Central Zone;

vi. There is no significant difference in the opinions of state and federal college Lecturers on the Utilization of Multimedia Resources for effective teaching of Social Studies in colleges of education in North-Central Zone.

## 1.6 Significance of the Study

Nigeria considers education as an instrument par excellence, which it intends utilizing to attain development in all its ramifications. Social Studies education is out to assist Nigeria in this direction by instilling moral values and decorum among other things to its learners aimed at producing effective citizens who are useful to themselves and their country at large. Therefore, if the above statements are true, then availability and effective organization and utilization of multimedia resources are inevitable to make the vision and mission a reality especially in Social Studies teacher training programme. This is because no education system can rise above the quality of its teachers.

The findings of the study is expected to be useful to policy makers at various levels of decision making processes especially in colleges of education in the study area. Beside, the authorities of National Commission for Colleges of Education (NCCE) will also find the research useful as it will assist in ascertaining the levels of availability, organization and

utilization of multimedia resources in the colleges of education especially in Social Studies departments.

This study is also aimed at making the Social Studies teachers generally aware of the importance of the need of using multimedia resources in the teaching learning process and to make them realize that students learn better when they come in contact with resources that appeal to multiple senses. Besides, this work would be very useful to education policy makers since it will expose extent of the availability, organization and utilization of multimedia resources for teaching Social Studies in colleges of education in Nigeria. Moreover, some of the problems associated with the use of multimedia resources and their solutions provided will go a long way in helping them in the formulation of policies.

The research work would be of immense help to would-be teachers coming from Colleges of Education in the implementation of the new National Policy on Education and one will see that it is highly essential to use multimedia resources for teaching learning process. This work would be another contribution to knowledge and would definitely expand its frontiers. This will lead to further research development.

Further, the study would be of great significance to the education policy administrators. This is because, their decisions affects all and sundry in the business of teaching and learning in education industry at large. The study's literature revealed some of the hitches militating against adequate utilization of multimedia resources. This will assists the policy makers to identify the problems with a view to finding sustainable solution especially the issue of funding training need of social studies teachers on Information and Communication Technology (ICTs) for effective service delivery.

The study also identified areas of caution for the teacher and the co-assistants in order to reduce the risks associated with the worthy course to the barest minimum.The study would also serve as a contribution to knowledge and learning to all and sundry but most especially relevant to stakeholders in the teaching and learning in the education industry at large and Social Studies specifically. Furtherstill, researchers in the field of multimedia in Social Studies in particular and beyond would find it rich in contents and facts which serve as a reference source and a point to build upon for future researches.

Besides, this work would be very useful to education policy makers since it would expose some problems associated with the use of multimedia aids and the solutions provided would go a long way to help them in the formulation of policies. Beside, researchers would find this work rich in contents.

### 1.7 Scope/Delimitation of the Study

The study evaluates the availability, organization and utilization of multimedia resources for Teaching Social Studies in colleges of education in Nigeria. The study is delimited to Colleges of Education in North-central Geo-political Zone that offers Social Studies Education as a course.

## CHAPTER TWO

## REVIEW OF RELATED LITERATURE

### 2.1 Introduction

This chapter reviews related literature on the topic under study. It is aimed at identifying what other writers and researchers have so far done in the area and what needs to be done. The chapter discusses the following sub-headings:

- Theoretical Framework
- Concept of Social Studies Education
- Goals of Social Studies Education in Nigeria
- General objectives of Social Studies education
- The nature of Social Studies Education
- The scope of Social Studies Education
- Historical Development of Social Studies Education in Nigeria
- Concept of Multimedia
- Concept of Teaching
- Concept of Learning
- Concept of Evaluation
- The Imperatives of Multimedia in teaching Social Studies
- Types and Classroom Application of Multimedia Resources
- The Audio-Visual Media
- Types of Audio-Visual Media
- Principles for selecting Multimedia Resources
- Criteria for selection and use of Multimedia Resources in Social Studies

- Factors inhibiting the utilization of Multimedia Resources in teaching Social Studies
- Review of Related Empirical Studies
- Summary

**2.2 Theoretical Framework**

A theory is defined as an idea or set of ideas that is intended to explain facts or events. It is also seen as an idea that is suggested or presented as possibly true but that is not known or proven to be true. It is the the general principles or ideas that relate to a particular subject. Theory has been defined by different scholars. A theory according to Yamah (2009) in Adoke (2015) is an explanation, idea or opinion based on thought, observation and reasoning which has been tested and confirmed as general principle explaining a large number of related facts. In other words, a theory is an explanation, idea or opinion based on thought. It can also be seen as an intellectual tool that does a number of things or functions viz:-

i) It helps us to analyse or organize our knowledge.

ii) It asks significant question and guide formulation of priorities in the design of research.

iii) It enables us to apply the nature of scientific enquiry in an orderly manner.

iv) It enables a scholar to relate knowledge in his field to that of other fields.

v) It enhances our ability to understand and explain reality in a satisfying way (Yamah, 2009).

The purpose of theoretical framework in research according to Lawrence (2005) is to provide a sort of "plank" on which the study rests. It is a reference point to which the study must conform.People have been trying to understand learning for over 2000 years. Learning

theorists have carried out a debate on how people learn that began at least as far back as the Greek philosophers, Socrates (469-399 B.C.), Plato (427-347 B.C.), and Aristotle (384-322 B.C). The debates that have occurred through the ages reoccur today in a variety of viewpoints about the purposes of education and about how to encourage learning. To a substantial extent, the most effective strategies for learning depend on what kind of learning is desired and toward what ends (Salihu 2015). This study uses the cognitive theory of multimedia learning and constructivism to serve as a plank on which the study rests.

The theoretical perspective for cognitive theory of multimedia learning is found in Mayer's (2001) work. Mayer's work is based on a learner-centered approach, which begins with an understanding of how human cognition works and focuses on the use of multimedia to enhance human learning. Some of the key findings and techniques leading to effective practice and models that relate to the present study include:

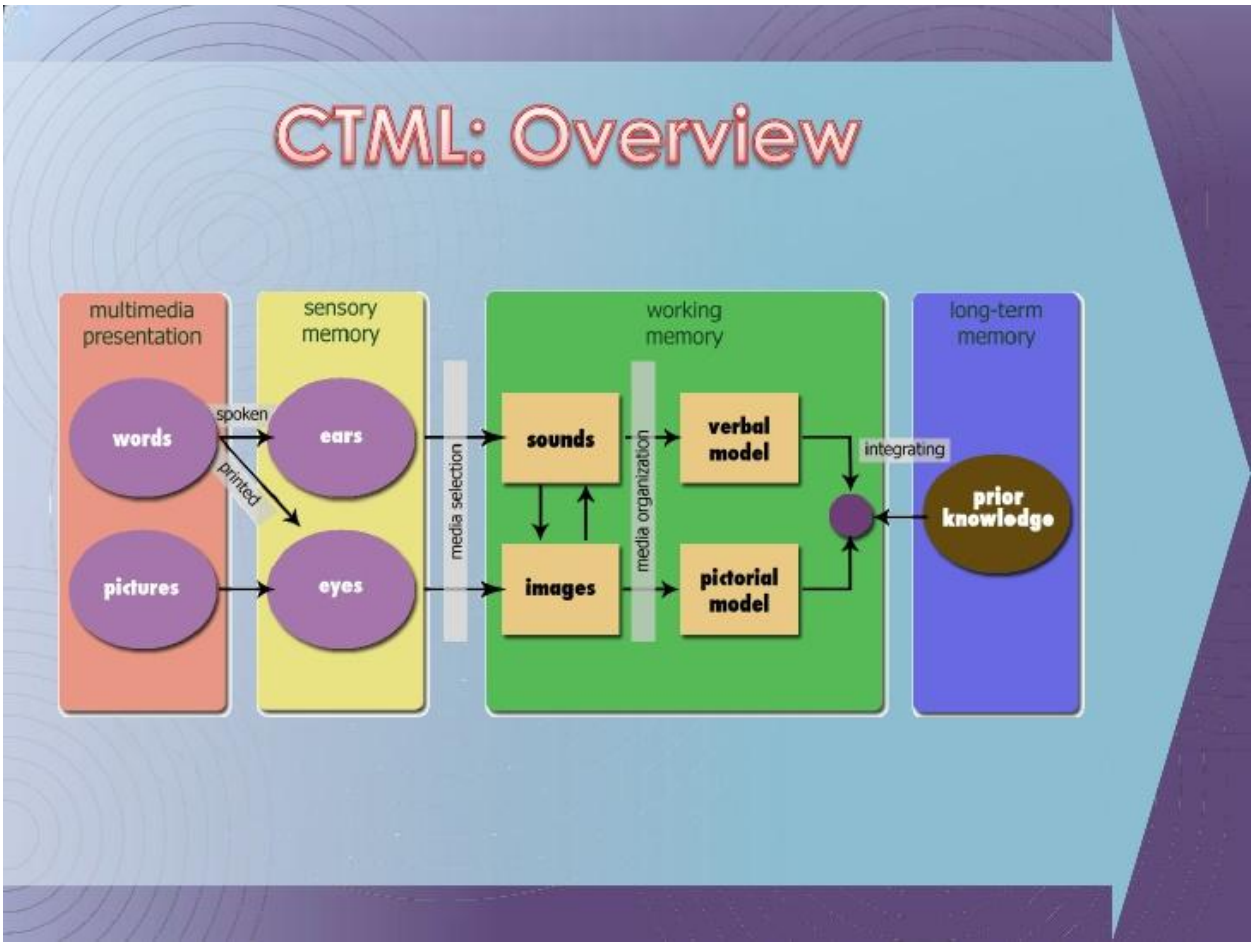
i) Spoken narration combined with an onscreen visual guide that does not split the attention of the learner, but in fact can enhance the experience in certain instances.

ii) Sudden onset of pictures and animation is more effective for learning than static pictures alone, presumably by directing the learner's attention and focus to specific elements in the visual display.

iii) The sudden onset of having visual elements appear produces the same learning enhancements as an animated presentation. Thus, the procedure of flashing appropriate parts of the pictorial information as they are described in the spoken narrative is as effective as a full animation. (Craig, Gholson, & Driscoll, 2002)

Researchers have focused on how various design features relate to human information processing, such as comparing and testing designs that place a light load versus a heavy load on a learner's visual processing channel. Pavio (1986), for example, developed a human cognitive

theory termed “dual coding”, in which he makes a case that the human brain is divided into two cognitive subsystems, one for processing nonverbal objects and information, and one for processing language. The research done by both Mayer and Pavio provide a theoretical base for this study which seeks to evaluate the availability, organization and utilization of multimedia resources for teaching Social Studies in colleges of education in Nigeria.Figure 1 shows the cognitive theory of multimedia learning (CTML) as adopted by the study.




Based on the above point of views it can be seen that the place of multimedia resources towards effective teaching and learning in Social Studies in colleges of education cannot be overemphasized. Empiricism as pioneered by Aristotle and other philosophers that followed his line of thought is strongly on the side of allowing learners to develop

knowledge through their senses and experiences under the guidance of the teacher. This is the fashion and trend in this 21st century teaching and learning encounter especially in the field of Social Studies education.

The second theory is constructivist learning theory. Constructivism is a psychological theory of knowledge which argues that human construct knowledge and meaning from their experiences. Constructivism is a set of beliefs about knowledge that begins with the assumption that reality exists but cannot be known as a set of truth (Tobin and Tippins, 1993). Constructivism is not accepting what you are told but your prior knowledge about what you are taught and your perceptions about it. Active involvement of students is emphasized in constructivism, hence, knowledge gained last long in their memory. Constructivism is not a new concept. It has its root in philosophy and had been applied to sociology and anthropology, as well as cognitive psychology and education. Constructivism-originating with the works of Dewey and moving forward to other theorist such as Piaget and Vygotsky.The basic premise of constructivism is that learners each have a unique knowledge base and rebuild that knowledge based on new information. Three tenets of constructivism according to Dauda (2015) that have relevance to multimedia application are:

i) Each person brings his or her own unique experience and knowledge set to the situation. Multimedia learning allows learners to pull from their own frame of reference and apply themselves to the situation. Each learner has the potential to approach the situation. Each learner has the potential to approach the situation in their own number.

ii) Learning occurs through active exploration when an individual's knowledge does not fit the current experience. Multimedia teaching and learning offer the opportunity to push

learners past their current knowledge level and see new areas where knowledge may be lacking.

iii) Learning requires interaction within a social context. A fundamental function of inquiry and simulation games methods is a team approach to learning institutions. Whether it is a single-or multi-disciplinary team in the simulation, effective interaction is often a requirement for success multimedia teaching and learning methods (Rodgers, 2007).

Five basic themes pervade the diversity of theories expressing constructivism. These themes are (i) active agency (ii) order (iii) self (iv) social-symbolic relatedness, and (v) lifespan development. With different language and terminological preferences, constructivists have proposed, first, that human experiences involves continuous active agency. This distinguishes constructivism from forms of determinism that cast human as passive pawns in the play of larger forces. Second is the contention that much human activity is devoted to ordering process-the organizational patterning of experience by means of tacit, emotional meaning-making processes. In a third common contention, constructivists argue that the organization of personal activity is fundamental self-referent or recursive. This makes the body a fulcrum of experiencing and it honours a deep phenomenological sense of selfhood or personal identity. The forth common theme of constructivism is that individuals cannot be understood apart from their organic embeddedness in social and symbolic systems. Finally, all of this active, meaningful and socially embedded self organization reflects an ongoing developmental flow in which dynamic dialectical tensions are essential. Order and disorder co-exist in lifelong quest for a dynamic balance that is never quite achieved. The existential tone here is unmistakable. Together, then, these five themes convey a constructive view of human experience as one that emphasizes meaningful action by a developing self in complex and unfolding relationships.

Researchers have identified the characteristics of a constructive learning environment. Jonassen (2005) sums up and gives a deeper meaning to constructivism in shaping teaching as:

i) Providing multiple representation of reality

ii) Presents a natural complexity of real life

iii) Focuses on the perceptual construction and not reproduction

iv) Presents authentic works (contextual rather than abstract class work)

v) Reflects the real world, a learning environment through spontaneous methods rather than determining class tasks in advance

vi) Stimulates the practice of reflection

vii) Provides context and meaningfully dependent insights of constructs

viii) Supports collaborative construction of knowledge through social practice (Norton and Wiburg, 2003, pages 33-34).

Multimedia is an ideal device for presenting reality to the learners. In many media combinations, the learners are provided with possibilities of individually experiencing the presented reality. A multimedia stimulating environment in which the learners find themselves encourages the learner's individual experience of the world and freedom of CHOICE of the media by which he/she most effectively learns (Rončević, 2009).

Focusing on a more educational description of constructivism, meaning is intimately connected with experience (Mahoney, 2004). According to Mahoney, students come into a classroom with their own experiences and cognitive structure based on those experiences. These preconceived structures are valid, invalid or incomplete. The learner will reformulate his/her existing structures only if new information or experiences are connected to knowledge already in memory. Inferences, elaborations and relationships between old perceptions and new ideas

must be personally drawn by the student in order for the new idea to become an integrated, useful part of his/her memory. Memorized facts or information that has not been connected with the learner's prior experiences will be quickly forgotten. In short, the learner must actively construct new information onto his/her existing mental framework for meaningful learning to occur.

Traditional teaching strategy is the process of transmission of knowledge from teacher to student (Rhodes and Bellamy, 1999). It is essentially a one-way process. The current Nigerian classroom in tertiary institution level tends to resemble a one-person show with a captive but often comatose audience. Classes are usually driven by "teacher-talk" and depend heavily on textbooks for the structure of the course. There is the idea that there is a fixed world of knowledge that the student must come to know. Information is divided into parts and built into a whole concept. Teachers serve as pipelines and seek to transfer their thought and meanings to the passive students. There is little room for student-initiated questions, independent thought or interaction between students. The goal of the learner is to regurgitate the accepted explanation or the methodology expostulated by the teacher (Caprico, 1994). This teaching strategy can hinder the development of individual students' active and creative abilities, and students who experience only this model of education may no longer be considered sufficient for the needs of a future educated citizenry (Zhao, 2003).

In multimedia teaching and learning settings, learning out is highly interactive, open-ended in terms of outcome, highly motivating and aided transfer and retention of the learned materials among the students. The role of the classroom instructor is that of an initiator of the whole process, facilitator, planner, supervisor and evaluator of the whole process. Teachers assist the students in developing new insights, bringing meaning out of the whole process and connecting

them with their previous learning. The activities are student-centred and students carry out their own experiments, make their own analogies and come to their own conclusions.

The cognitive theorists believe the role of the teacher is to provide learners with opportunities and incentives to learn, holding that among other thing:

i) All learning, except for simple rote memorization, requires the learners to actively construct meaning,

ii) Students' prior understandings and thoughts about a topic or concept before instruction exert a tremendous influence on what they learn during instruction;

iii) The teacher's primary goal is to generate a change in the learner's cognitive structure or way of viewing and organizing the word and;

iv) Learning in co-operation with others is an important source of motivation, support, modeling, and coaching (Feden, 1995).

The constructivist theory of learning supports cognitive pedagogy, for opposing that humans have an innate sense of the world and this domain allows them to move from passive observers to active learners. Carlson (2003) supports a strong emphasis on identifying, building upon and modifying the existing knowledge (prior knowledge) students bring to the classroom, rather than assuming they will automatically absorb and believe what they read in the textbooks and are told in the class. Research by Caprico (1994) indicates that better exam grades are obtained by students taught using constructivist methodology of which multimedia teaching and learning environment shares some vital principles. Supporting the finding, Saigo (1999), White (1999) concludes that "the constructivist model has been found to slightly influence students' achievement in a positive way". The constructivist model is capable of getting students more involved in learning. In this regard, Kurt and Somchai (2004) in their own research study on

constructivism also found that students used for their study participated more in the classroom activities and gained content knowledge when a constructivist approach was used. Multimedia teaching and learning is one of those constructivist approaches as its principles and preoccupations tallied.

**2.3 Concept of Social Studies Education**

Social studies is seen as the study of man in his entirety. It has also been defined as the study of man and his physical and social environment. It studies man as he relates with his physical and social environment and the outcome of such relationship. According to Kadiri (2004: 241) Social Studies is:

> An integrated study of the social sciences and humanities to promote civic competence. Within the school programmes, social studies provides coordinate, systematic study drawing upon such disciplines as anthropology, economics, geography, history, law, political science, religion, etc. as well as appropriate content from the Humanities, mathematics and natural science. The purpose of social studies is to help young people the ability to make informed and reasoned decisions for the public good as citizens of a culturally diverse, democratic society in an interdependent world.

Furthermore, Ololobou (2010) defined social studies is "the integrated study of man as he battles for survival in the environment both physical and social. It promotes awareness, appreciation, and understanding of the reciprocal relationship between man and the environment. The essence of studying social studies is to make out of learners, persons who are responsive and responsible citizens".

According to Omooba, Obi and Olabode (2008), social studies is a programme of study which a social studies teacher uses to instill in students the knowledge, skills, attitudes and actions

it considers important concerning the relationships human beings have with one another, their world and themselves. According to Mezieobi, Fubara and Mezieobi (2008), social studies may be simply defined as an "integrative field of study which probes man's symbiotic relationships with his environments endows man with the reflective or contemplative capacities, intellectual, affective, social and work skills, to enable him understand his world and its problems, and to rationally solve or cope with them for effective living in the society.

According to Okonkwo (2000), social studies is "the study of man and his physical and social environments and of how man interacts with others". However to Onipe (2004), social studies is an integrated study that critically looks at man and his complex relationships within his socio-physical environments.According to Ogundare (2000), 'Social studies is a study of problems of survival in an environment and how to find solutions to them. It is a multi-disciplinary study of topic, a problem, an issue, a concern or an aspiration'. Furthermore, according to Ololobou (2004), social studies is seen as: An organized integrated study of man and his environment, both physical and social, emphasizing on cognition, functional skills, and desirable attitudes and actions for the purposes of producing an effective citizenry. Similarly, Omooba, Obi and Olabode (2008) indicated that social studies is that aspect of learning which deals with how to get along with one's environment, physical as well as human, and to develop those skills, knowledge, attitudes and values that characterize a responsible citizens in a free society. Going by the above definitions, it is apparent that social studies education is a discipline or subject that focuses on solving the problems of man in the society.

**2.4 Goals of Social Studies Education**

The general goals of social studies education have been seen and categorized in various ways depending on the us in which the objectives is being employed. These according to Mezieobi, Fubara and Mezieobi (2008) include:

i. Didactic or knowledge and information goals: This goal focused on transmitting or importing knowledge or information that are social studies related or relevant. Knowledge or information that is emphasized is not that one, that is dormant or insert, but knowledge that can be utilized to equip one with ones social realities sand problems, or to provide the framework for putting it into effective usage.

ii. Reflective thinking goals: The utility value of any knowledge or information is the ability of the receiver of that information to digest it, analyze it and apply it in the solution of problems, or in the creation of new knowledge through serious thinking. The ability of any knowledge to be functional is a product of reflective thinking process.

iii. Affective goals: These entail the ability to develop in the recipient of social studies information, knowledge of content, positive values, attitudes and feelings. In fact, the pervasiveness of negative values in Nigeria, valuelessness, disloyalty or unpatriotic behavioural displays or acts, disrespect to cultural heritage, institutions of this country, coupled with dehumanization of humans lend import to this value goal-object of social studies which in the context of Nigeria entail value crusade and the putting in place of a systematized educational programmes for value re-orientation.

iv. Citizenship transmission goals: This involves inculcating in the children socio-civic competences and all good citizenship entails. The attainment of this goal makes a stable society with a minimum of maladaptive behaviours.

v. Pupil self-enhancement goals: The ultimate focus of this goals of social studies is to equip thee children with the psychological know-how to enable them feel committed to their society, feel a sense of being worthy members of the society who are bound to contribute to society development.

vi. Socio-political activism goals: This goal intends to makes the pupil student clientele active socio-political participant in his environment and who would resort to constructive social criticism when need be.

vii. Skills goals: By exposing children to social studies, they would acquire social skills, study skills and work habits group work skills and intellectual skills, (Jarolimek 1986), all of which would make for social sensitivity and participation, working together with others, and participating in group affairs, and productively employing one's intellectual capabilities.

### 2.4.1 General Objectives of Social Studies Education

Social studies objectives were coined out from the four national educational aims and objectives as outline in the NPE (2013) which are as follows:

i. The inculcation of national conscious and national unity.

ii. The inculcation of the right types of values and attitudes for the survival of the individual and the Nigerian society.

iii. The training of the mind in the understanding of the world and;

iv. The acquisition of appropriate skills abilities and competence both mental and physical as equipments for the individual to live and contribute to the development of the society.

However, Abdulkareem (1986) in Shehu (2015) listed the following as the general objectives of social studies

i. Development of a capacity to learn and acquire basic skill, including those of listening, reading, writing together with those of observation, analysis and influences which are essential to the formation of sound judgment;

ii. Ensuring the acquisition of certain important things for instance the relevant body of knowledge and information that are the essential prerequisite to personal development and to the making of positive contribution to the betterment of the society as a whole

iii. Becoming greatly aware of and having better understanding of our physical environment and the evolving social and cultural process;

iv. Developing the ability for rational utilization of our cultural, spiritual and national resources and their conservation for national development;

v. Appreciating the diversity and interdependence of all members of the local and national committee and the need for cooperation for the unity of the country and international understanding;

vi. Inculcating positive attitudes and appreciation for honesty, integrate, hard work, fairness justice and togetherness for the development of the nation;

vii. Social attitudes and values such as cooperation, participation, interdependence, open-mindedness, honesty, integrity, trustworthiness, diligence, obedience;

viii. Spirit of national consciousness and patriotism through interest and involvement in our local, national and world heritage;

ix. Social awareness and critical judgment as well as constructive and effective thinking.

**2.5 The Nature of Social Studies Programme**

The nature of Social Studies education usually raises two vital impressions (Kadiri, 2004). Firstly, social studies is viewed as simplified social science. Secondly many have the feelings that it is a combination of social science and humanities. Social studies is far from these, it is

part of today's thinking of evolving an integrated curriculum. This thinking is seriously reinforced by certain beliefs. Firstly, social, political, and economic problems are no respecters of geographical boundaries; secondly, at several times of our lives we make decisions not only for ourselves but for others; inadequate knowledge can impede sound, decision-making. Thirdly, the complexity of the world and rapid globalization, necessitate broad knowledge. Fourthly, democracy is gaining ground in Africa. Social studies education is necessary for the survival of democracy (Salihu, 2015). On the basis of the above and many others, social studies use concepts, facts and generalizations from the social sciences. Social studies tart where the social sciences end. Broad knowledge is needed for individuals to function well in a complex society. This wholistic approach to curriculum organization in social studies makes it possible for vital issues such as population, environment, race, intolerance, drugs, family life, refugees, etc. to be accommodated.

The Nigerian society is rich in its diversity of people, cultures and traditional, physical environments and aspirations. One major task of social studies course is to attempt to understand this diversity, foster unity and promote desirable social attitudes such as self-discipline, social and moral responsibility. The relevance of social studies is primarily to help the individual to look into his society and to understand its problems for which he should help to provide solutions. Different societies have different problems; hence the conception of social studies for any given society must take into account the peculiarities of each society. Thus although there are various concepts of social studies, the conception of the course in the Nigerian society must be very closely tied to the changing needs, problems and challenges of our society as they occur over time (Federal Republic of Nigeria [FRN] 2006).

Social studies is an integrated study of man and the outcomes of his interactions with various environments. In other words social studies is different from the older and traditional school subjects, e.g. history, geography, economics, government, sociology, religious studies etc. its nature and content are based on its integrated concepts and methodology (FRN, 2006). The subject focuses on problems of man's survival in the process of his interactions with his environments.

In focusing on problems, it takes into consideration all conceivable factors and aspects of the problems are these historical, geographical, political, economical, sociological, religious, psychological, scientific and technological, etc. it thus employs the systems analytical approach to the identification and the study of problems of man in his multi-faceted environment. Social studies education utilizes a horizontal and spiral approach for the analysis of societal problems.Although social studies aims at imparting knowledge and providing valuable information necessary for life, its basic function is to help pupils to inculcate desirable social habits, attitudes and values, as well as useful skills of listening, reading, writing, calculating and problem-solving and those of other intellectual and manipulative nature, so much needed for the survival of the individual in the society. As an integrated subject, therefore social studies education is not the study of traditional subjects with many over-lapping areas. It is not just a mere amalgamation of these traditional subjects, in fact it is an integrated curriculum for wholesome education.

The nature of social studies refers to the essential features or characteristics which distinguish social studies from other subject areas. Some of the characteristics of social studies opined Ololobou (2010) include the following:

i. It is a study of man as he interacts with the environment, Man is the central or core

concern as he relate with the various aspects of the environment.

ii. It is integrated knowledge and information drawn from a wide variety of sources is used to study man comprehensively. Social studies therefore portrays the oneness and indivisibility of knowledge and the reality of man's interaction with the environment.

iii. Social studies is value-based. All three domains of learning cognitive, psychomotor and affective are emphasized. However, the affective aspect of learning is given prime importance because social studies is interested in modifying the behaviour of learners to get them integrated into their various cultural areas.

iv. Social studies is a problem-oriented area of study. It is a response to the problems of society with a view to seeking rational solutions to the identified problems.

v. Inquiry is the core of all teaching approaches in social studies. Learners are expected to go into the environment to investigate, collect, analyse data to make inferences and conclusions on social issues and phenomenon,

vi. Social studies is citizenship education. It is a study that exposes learners to the basic tenets of citizenship which emphasizes rights and obligation, human dignity and worth, dignity in labour, moral and spiritual principles in interpersonal relations to make them socially responsible citizens. The National Council of the Social Studies (NCSS) noted that meaningful social studies programmes highlighted these features. Learners in social studies focus themselves in understanding the world they live. They focus the problems around them; make inferences, conclusions and decisions based on observations made in the light of established societal values. Thus, social studies is the great connections between school learning and living in the real world. Learners are prepared through social studies for active, meaningful and challenging citizenship in a democracy like Nigeria.

**2.6 Scope of Social Studies Education Programme**

Some people wrongly accused social studies education as being 'jack of all trades'. This is because of its wide coverage and interdisciplinary nature. Thus, they use to refer the subject as a forest-because to them it has no entry and exit. The professional teacher of social studies has to accept and propagate the view that modern curriculum trends in the context of his subject area have been developed to solve the problem created by the traditional subject approach which has bedeviled curriculum programmes in our schools. In this new dispensation, social studies is aimed at incorporating integratively, knowledge and inspiration from many realms of learning. Indeed, any prospects for serious improvements in the pedagogy of modern social studies must be dictated by an understanding that knowledge from any one discipline is too limited to enable an individual to fully understand the immense complexity of human behaviour and to make reflective decisions on personal and public issues (Banks and Clegg, 1977) cited in Okam and Nedoso (2003). According to Okam and Nedoso (2003):

> It has become a willy-nilly affair that many related subjects such as history, geography, economics, sociology, political science, anthropology etc need to feature in the social studies content and or programmes because concepts from these disciplines constitute the curriculum bedrock of the subject area. These subjects largely constitute the content for dealing with the central issues which social studies, as a discipline, cannot afford to dispense with and survive as a subject worthy of pursuit. Some of these vital issues, according to the Nigerian national Policy on Education (1981), include the following: "a shared responsibility for the common good of society", "a cultivation of a sense of compassion for the less fortunate": "a cherishing of a sense of respect and tolerance for others"; "a cultivation of social attitudes and values such as cooperation, participation, honesty, interdependence, open-mindedness, integrity, trustworthiness, diligence and obedience"; "an acquisition of dispositions and or attitudes favourable to social, cultural, physical and economic development"; "rationality"; "interaction amongst peoples"; "loyalty and patriotism"; "freedom and authority"; "value inquiry"; "value-analysis" and "critical thinking.

These, concepts and conceptual frameworks according to Okam and Nedoso (2003) “which derive from a large variety of subject disciplines, including the social sciences, do not only constitute the centre-piece of social studies education but also represent important curricular artifacts necessary for an effective establishment of learning and behavioural objectives for students and learners in the subject area”. In the light if the above, Okam and Nedoso (2003) stated that “it is expected that these concepts and conceptual frameworks are to function as differentiated focal points in terms of which not only the language and most of the subject-matter or content of the social studies are formulated but also in respect of which young learners are assisted to develop needed fundamental knowledge and positive attitudes which they would use in buttressing their own rational behaviour, as effective citizens sooner or later within the Nigerian political framework”.

Any prospects for improvement in the classroom image of the social studies curriculum demands that the professional teacher of the subject must subscribe and conform to the instruction demands and curricular underpinnings of the subject area. Thus, this professional teacher must, of necessity, put up with the view that the language of his subject area underscores a mastery of the skills associated with the expanded meanings and knowledge of the interconnections and interrelationships deriving from the aforementioned concepts and conceptual frameworks and many others. A possession of a sound knowledge of networks of relationships and interrelationships arising from these structures and many others which emanate from the social science disciplines implies that meaningful propositions, generalizations and even theories can be formulated and understood in social studies (Okam and Nedoso, 2003).

Therefore, based on the above, Okam and Nedoso (2003) state that, “because of its multi-disciplinary and interdisciplinary emphases, classroom work in the social studies must move towards a new synthesis in bringing the component parts of the curriculum into some coherent shape so that various kinds of disciplined thought and inquiry which bear upon the practical activity of education be brought to a new focus in order that new kinds of understandings be generated”. The broad nature of social studies enables it to cover a wider ground. Social studies, as already pointed out, investigates the totality of man's activities, generating understanding, developing needed skills and encouraging desirable attitudes (Kadiri, 2004).Investigating man's activities involves the study of man in various contexts. Akinlaye (1980) stated that social studies does not only investigate the partial or the temporal angles of man as geography and history do, respectively, but it studies man from both perspectives. This view agrees with modern thinking about goals of education and specifically that of social studies education. Similarly, Hanna (1974) suggested that the scope of social studies must be broad, and rich in concepts, facts and generalizations from the social sciences so that it does not only help to raise academically versatile individuals but also responsive and responsible citizens. Based on the above, Okonkwo (2004) identified many areas which she referred to as the scope of social studies education programme. These are discussed below:

**Cultural Heritage**

The cultural heritages of a people are embodied in stories about their values, hopes and dreams, fears and dilemmas. The major responsibility of the school is to transmit the cultural heritage to the next generation. This is accomplished by putting students in touch with history-the people, ideals, artifacts and dilemmas of the past that need to be

brought forward as a part of the present and future.Every human society (and groups within large modern societies) has particular patterns of behaviour that make up its culture. A culture consists of languages, tools, important documents, customs, social institutions, beliefs, rituals, games, attitudes, utensils, clothing, ornaments, works of art, religion, and more. Within social groups, individuals learn accepted means of meeting their needs and coping with problems of living. These ways of perceiving, thinking, and behaving are part of their heritage.

**Global Perspective**

Every society struggles with the on-going conflict between the desire for independence and the realities interdependence. The world is becoming more crowded, more interconnected, and more volatile. There is the desire for peace but the preparation for war continues. What happens in the most distant part of the world may quickly affect us. Students must, therefore, understand the worldwide dynamics of human, technological, and ideological positions or practices as culture is shared across the world. Inter-dependence demands that our perspective be global.

**Political/Economic Issues**

One of the desired attributes of a citizen of any country is the ability to function effectively within its political and economic systems. This means the ability to make personal and social decisions, often with little time and incomplete information; citizens need to become aware of their political and economic opportunities and obligations.

To a large extent, citizens still see their civic roles as public and their economic roles as private. We see all "civic" citizens as unequal because of their different standards of living. Within a given country, the citizen must understand the relationship between

civic and economic justice and power, and work for the public good as well as the private good.

**Tradition and Change**

People, events, tools, institutions, attitude, values, and ideas all change over time. History records the struggles of people and groups who favour change and those who oppose change. The rate of change is uneven among and within different culture and societies but change is continuous and the rate of change in today's world is accelerating. As the rate of change accelerates, we must place greater importance, than in the past, on anticipating the future. Important as change is to our lives, we must recognize that human experience is continuous and interrelated. Continuity and traditions are facts of life and provide life and meanings, beauty, and truth. In some ways, "nothing new occurs under the sun". All persons, events, actions and change are the outcome of things that have gone before. Students should learn how change and continuity constantly influence their lives.

**Social History**

The need for equity and justice, and the large reservoir of historical and contemporary evidence of neglect demands that we include women, minorities, and the so called ordinary people in our study of the human family. Human values come to life through the stories of people who played many roles in the dream of history. For example, children can learn about courage from stories and teachers can use songs and poetry of the done-trodden to teach about justice. Social history encourages the study of the past through primary sources and personal accounts.

**Spatial Relationships**

The study of areal distribution, the examination of particular places, and the delineation of regions help students understand how earth space is organized. People use similar earth space or areas in different ways. They link or interconnect the different areas with transportation and communication routes. They move themselves, messages, and goods and services over the routes. The discipline most involved with spatial relationships is geography.Geography is concerned with understanding the location and spatial arrangement of places and landscapes on the earth. Consequently, geography links the social and natural sciences and provides the spatial perspective necessary for understanding culture and human behaviour.

**Social Contracts**

The fact that one is part of a society also requires that we enter into a social contract with our fellow citizens. This contract influences our public behaviour and defines our privileges and obligation as citizens. Social contracts are entered into not only by people as they approach the age of maturity, they are also a real and necessary part of the groups we call family, schools social clubs and other social organizations.

**Technology**

As humans modify nature for their purposes they engage in both sciences and engineering. Technology can also be understood as one of our "tools". We use these tools in utilitarian as well as aesthetic ways to bring comfort, meaning, enjoyment and damage to our lives. In many ways, we are extensions of our tools; we see, hear, travel, fight and stay alive because of tools (technology). Social studies education must help students understand the role of technology in their lives.

**Peace/Interdependence**

Today, one hears cries for peace in many languages and from many nations. The tree of peace has its roots in justice. If there are no roots, the tree dies. The two concepts of peace and justice are inseparable.Every society struggles with the conflicts between the desire for independence and the realities of interdependence. Modern economic systems are based on the principle of specialization because it is more efficient and productive than other ways of getting work done.Specialization occurs when we produce a narrow range of goods and services than we consume. Individuals, businesses, regions or nations, can practice specialization. Specialization results from the division of labour, where productive tasks are divided among workers to take advantage of a workers skill at a specific production operation.

**Citizenship**

Citizenship in a democracy involves both obligations and privileges. Students need to understand how government and politics actually work. They need to understand the underlying purposes and values of government in a free society. In social studies classes, students should have opportunities to develop the abilities required to be effective citizens in a democratic society. Students heed opportunities to learn and practice their roles, rights and responsibilities as citizens of a democracy and members of the global community.The above themes present perspectives that provide students with the temporal, spatial, and cultural criteria necessary for comprehension and rational action. Emphasis on specific themes may vary through the grade levels. However, it is necessary that each theme is accorded some attention at each grade level.

**2.7 Historical Development of Social Studies in Nigeria**

Social Studies as an integrated discipline was not in existence during the colonial era in Nigeria (1840-1960). What was found in the primary and post primary schools in the country was the teaching of a kind of curriculum called "General Knowledge" (Udoh, 1989). Of course, the Nigerian child was therefore being educated outside his/her own environment, his/her society and culture. It was more appropriate at that time to know and explain concepts from European examples. The development of Social Studies in Nigeria however came earlier than those of other countries in Africa. This was because as early as 1958, the Ohio state University in the United States of America had sponsored some Nigerians for training programmes in Social Studies. The arrival of the recipients of such training programmes greatly influenced their thoughts about Social Studies. For instance, they perceived the social ills that accompanied Nigeria's transition from colonial era to independence. They discovered the high rate of acculturation among Nigerians and the rate at which the nation's cultural traditions were breaking down. They therefore, felt that the only way to salvage the country was to train the young ones in a manner that would provide them with opportunities to catch up with the new problem of change (Lawal, 2003).

This pattern of Social Studies thoughts was also complemented with an earlier effort at introducing the subject on an experimental basis in the Northern Nigeria teacher training institutions as a formal school subject. However, between 1964 and 1965, Social Studies had been introduced into Nigeria through the Northern Education Project and the Aiyetoro Comprehensive High School Project of Western Nigeria. During this same period, the then Western Nigeria Ministry of Education began preparation for the propagation of the subject by convening a conference and agreeing to an outline of the Social Studies syllabus for secondary schools classes I and II. This was later assigned to the Department of Social

Studies in Aiyetoro Comprehensive High School with the assistance of the Ford Foundation Aid and the Comparative Education Study and Adaptation Centre (CESAC). The experimental teaching of Social Studies did not experience a total success in the Eastern Nigeria due to the civil war. The Northern states' education committee of the Interim Common Services Agency (after the creation of six states from the existing Northern States), however made a decision that Social Studies should be introduced into schools and colleges in the Northern states.

However, by 1969, Social Studies department was firmly established in the Institute of Education, Ahmadu Bello University in Zaria. In that very year, a national curriculum conference was held in Lagos and this gave a better national recognition to the subject as a means of achieving national objectives of education. However, 1970 witnessed another tremendous position change in Social Studies as materials produced for primary and teacher's colleges in the Northern states were out and the CESAC's book were modified and refined. More states such as Lagos, Kwara and Kaduna began to introduce the subject in 1971. Representatives from the East Central State Ministry of Education also attended Social Studies Association of Nigeria (SOSAN) now Social Studies and Civic Educators Association of Nigeria (SOSCEAN) Conference in 1971 with the full support for the teaching and learning of the subject. With the first National Curriculum Workshop held in Ibadan under the sponsorship of the Nigeria Education Research Council (NERC), the first ever National Social Studies Syllabus for primary schools was produced. Concepts, nature, objectives, teaching strategies, teaching aids, evaluation techniques were discussed at the conference.

Based on the necessity for training of pre-service Social Studies teachers in primary schools, the Nigeria Education Research Council (NERC) produced syllabus for teachers

colleges in 1972 and the Institute of Education; ABU Zaria introduced the subject into its Post Graduate Diploma in Education (PGDE) programme. In the same year, a degree 32 Course in Social Studies in ABU, Zaria and Nigeria Certificate in Education (NCE) programme in Advanced Teacher's College Sokoto was introduced in 1973. Further, 1974 and 1975 witnessed another development at the Institute of Education, University of Lagos, where the subject was introduced at Associateship and NCE levels. 1976 was another year when Universal Free Primary Education was launched throughout the country, and the teaching of Social Studies in the primary schools replaced separate subjects of the social sciences. It became compulsory in teacher's colleges. In 1978, two- year Bachelor of Education (B.Ed) degree programmes in Social Studies was also introduced at ABU, Zaria.

However, by 1980, the discipline of Social Studies was offered at all levels of our educational system and the National Policy on Education made it a core subject in primary and junior secondary schools. In 1981, the NERC now Nigerian Educational Research and Development Council (NERDC), thought it wise to review the National Primary Social Studies Curriculum Guide which was produced in 1971. The revised guide was published by the Federal Ministry of Education in 1983. However, 1981 and 1984 witnessed another rapid development because many more universities started post-graduate degree programmes in Social Studies. Typical example of such institutions included: Ife, Ibadan, Ilorin, Lagos, Nsukka and Jos. The Joint Consultative Committee (JCC) also approved the Junior Secondary School Social Studies Syllabus (Udoh, 1989). The National Teacher's Institute did not only produce the Grade II Social Studies Syllabus and texts, it also went ahead to write course books on Social Studies for NCE for Distance Learning System, the distribution of which started in January 1990. Almost all colleges of education now offer Social Studies in their current programmes. Degree and post-graduate programme in Social Studies are now being offered

in more than ten universities in Nigeria. The skepticism on the nature, scope and philosophy of Social Studies has been over to some extent. It is now a compulsory subject in the first nine years of a Nigerian child's education courtesy of the new 9-year Basic Education Curriculum launched in 2007.

In a related development, there is an ongoing effort by stakeholders in the field of social studies education to pursue the review and full implementation of social studies education curriculum for senior secondary schools in Nigeria. The curriculum was developed some years back, but its implementation is yet to be realized, this will serve as a measure boost to the subject. However, the merger of Social Studies teachers association and that of Civic Education teachers association under one umbrella in 2012 as Social Studies and Civic Educators Association of Nigeria (SOSCEAN) is another good step in the right direction especially when it comes to pursuing common goals and promoting and protecting their interests; their voices will be louder and their words will have weight.

**2.8 Concept of Multimedia**

Multimedia is an extremely popular word and is multi-meaning which may lead to confusion in its interpretation, more so because for different people multimedia has a different meaning and different interpretation. Multimedia is a word which nowadays is often used in different human activities. Mayer (2007:2) lists several different interpretations of the word multimedia within different contexts: “For some people, multimedia is a presentation of information by the computer of: text, graphics, animation and sound. For others, multimedia means a “live” presentation in which a group of people sit in a room watching images on one or more screens and listening to music or an orator. Watching television, VCR or DVD can also be called a multimedia experience. The following example of multimedia is a PowerPoint in which a person

presents slides off the computer onto a wider screen and talks about each slide. Even a technically simpler environment facilitates multimedia such as “chalk and speech” where somebody writes or draws on a blackboard, verbally explaining the lesson. Finally, the most common basic type of multimedia is a textbook since it consists of printed text and illustrations.”

Communication “in one or more ways” refers to audio and visual sense by which the information is acquired. “Multimedia” is a clearly based phenomena which has its applicability and impact in business, education, entertainment and personal creativity.” (Jerram and Gosney, 1955:5). Multimedia in librarianship is a “term for a construction unit which contains two or more different media or different forms of the same media, where neither one can be credited with primary significance. It is usually used as an entity and is called a multi-purpose and multimedia construction.” (Kovačec, 2005:513). This type of definition is based in the prefix multi i.e. several, which means multimedia as a component of two or more medium, where it is not important whether the components are of the same or different sensory compartment.The term "multimedia" has been used since the early 1960s to describe audiovisual aids (AVAs). The modern interpretation of the term includes a rich set of computer-based AVAs, such as scanners/digitizers, CD-ROM/DVD drives, and digital cameras, along with online resources such as the World Wide Web. These AVAs require computers to coordinate their incorporation into teaching and learning activities, transforming AVAs into AV/IT systems.

Interpretation of multimedia in art is defined as “An artistic form in which several different artistic expressions are fused and connected: visual, musical, theatrical and dance, where modern technical media are used: photograph, film, VCR, sound recording etc.” (Kovačec, 2005:513). Multimedia in art represents a synthesis of expressions of various artistic fields.

Multimedia “represents information to more than one medium…” (William, 1995:370). Similarly, Lockard and Abrams (2000:230) describe multimedia as: “Each system that unites two or more media into one product or presentation.” The last two definitions open the possibility for a multi-meaning understanding of multimedia. Apart from the stated definitions of the wide field of human activities in which multimedia is used, the starting point in this study will be Information Technology (IT) definitions of multimedia, which are based on computerised, synthetic displays of audio and visual media: images, text, sound, video and animation, and thus will be explained after the individual determination of the words multi and media.

Terminological definition of the word multimedia finds its roots in Latin origin and is composed of two words: multi and media. Multi is a prefix in a compound word multimedia and comes from the Latin word multus, which means many (Klaić, 1990:914). Multi is a “suffix in the compound word, and means many, more”, meaning “that which is composed of more or many things” (Anić, 2003:787).

The basic cause of the problem in understanding the word multimedia is in the diverse, non-standardised and multi-meaning interpretation and definition of the term medium. Observing the term media in a wider context, the same word has different meaning in different human activities. In spirituality it can mean the person – energy channel of spiritual messages through the dimension of time, healer, a person who is or will be hypnotized etc. Media in journalism refers to media of public communication or mass, mass media (radio, newspaper, TV etc.). In the field of economics, the term commercial media (billboard ads, TV, flyers, brochures, key chains, clothing materials with imprinted advertisement, logo etc…). In criminology, media are used as persons who help to solve problems and mysteries of criminal cases. Media is also used for explaining various physical and chemical processes (SSKJ, 1995:533). The well-known statement

by McLuhan (2008:17-18) that medium is a message: “Before the arrival of electric speed and the entire field, it was not obvious that medium was a message. It was thought that a message was” content” since people used to ask what the picture says. Nevertheless, they never wondered what a certain melody said or what does a house say or a dress. In those kinds of situations, to a certain extent, they kept the feeling of an entire sample, form and function of some kind of unity. But, in the electronic era, this whole idea of structure and configuration was so dominant that the theory of education took things into its own hands. Instead of dealing with specialised arithmetic “problems”, the structural approach today follows the forced direction in the field of numbers, thus forcing children to think in terms of number theories and “sequences.”

“Medium has several similar explanations: “1. An environment in which there is something, an environment and way in which something is said; 2.a) A means and way of saying something, means of communication; 2.b) Modern tool for transfer of information (newspapers, radio etc.).” (Anić, 2003:738). Medium in English means middle, one that is in the middle. “Medium-1.Middle; 2.Mediator, guide; 3.Means, mediation” (Filipović, 1998:683). In the mini English dictionary, medium means “in the middle between extremes. “ (Mini dictionary, 2001:345) and the word multi is a “combinational form for more.” (Mini dictionary, 2001:363). Medium in Latin medius means middle, environment in which someone moves (Klaić, 1995:798). This means that media are in the middle i.e. between people and information. In the English-Croatian and Croatian-English Computer Science dictionary a medium is described as: “...means for storing data and information...” (Kiš, 2002:603), but besides containing information, it is important to point out that its role is in transferring information.

A medium is “every means of communication by which a message can be transmitted, information from the communicator to the recipient, regardless of the fact whether the communicators or recipients are individuals or groups, as actors of communicational practice. Every means which enables a transfer of messages through space and time from source to the recipient, is considered a medium of communication.” (Srdić 1979:58). Medium is a word which is similarly used in different languages e.g. English: media, German: das Medium (plural: die Medien), Italian: il medio, Spanish: medio (medio de comunicacion), French: media (Brozović, 2000:316). In this study, the term medium will be used exclusively in a didactic sense. Therefore, in the following text, a few definitions of medium in the field of didactics will be used.

Media are all means which take on a mediating role between “man and information”. (Lavrnja, 1998:127). In the focus of research, media intervene between the learners and information. It can be said that media are “carriers and/or transmitters of information” (Blažič, 2007:38) i.e. media contain and/or transmit information. In that connection, media have the role of a teaching aid and/or teaching tool. As a teaching aid, media represent carriers of information and as a teaching tool they play the role of transmitters of information. The distinction of the didactic term medium from media is in the teaching purpose i.e. the aim of its usage. While media generally carry and transmit information, in class they are used for stimulating developmental changes in learner. This is supported by the quote of a German didactician, G. Dohmen (according to: Bognar and Matijević, 2005:326) who gave the following definition of media: “The specific didactic term medium signifies the carrier/mediator of information in didactically functional connections. This means that here the emphasis is geared towards a medium that is perceived as a carrier of different individual functions within the framework of basic functions of all media – transmitting and mediating information – in a specific didactic reflexive i.e. intentional connection.

The didactic term media is not identical with the term “hardware” (here it mean tools, objects, materials) nor with the term “Software” (contents, notifications). Only when reproductive means and material carriers become in a didactic connection carriers and mediators of information, i.e. when tools and information are connected in the service of a some didactic function, do we talk about medium in a didactic sense.” It is precisely Dohmen’s definition of media that will be the leading definition in this study. There are several definitions of media, of which a few more, used by Blažič, are mentioned: “Media as treasure and carriers of ideology…(Kinter, Maspfuhl)…Media as different elements of the educational environment, which create stimuli in pupils…(Gagne), Media as a system which mediates messages in space and time. In the system it includes integral parts which are necessary to record signals, significant for media, for archiving and transmission of messages as well as for mediating signals to the transmitter…(Handal), Media as a teacher’s tool for work…(Diel), Media as inter-didactic elements (Von Cube), Media as a tool for pupils, as a means for self-education…(Knigge-Ilner).” (According to Blažič, 2007:37 In the encyclopedic dictionary of pedagogy, teaching tools are defined as: “various objects, images, models, devices, machines, collections and other graphic materials which in class serve as sources for immediate acquisition of knowledge or simply as auxiliary aids for indirect acquiring of knowledge.” (Franković et al, 1963:525) Đorđević says for the media: “Teaching tools are didactic working instruments which bring specific elements into the teaching process and contribute to a more effective creation of class and pedagogical educational tasks of the school.” (Đorđević, 1981:222).

Media is named differently in the teaching practice: teaching tools and aids, classroom devices, graphic devices, working devices, technical devices, tools for learning, teaching technique… Furthermore, Blažič’s (2007:38) reflection on media in class is interesting because he mentions

its effectiveness in the process of learning, in harmony with the aims of usage: “Recognising mass media such as magazines, radio, television and special teaching or educational media e.g. book, programmed textbook, transparency, slide, sound tape, gramophone record, CD, DVD, school television, video, computer etc. enables a distinction between different levels of media usage that are significant in determining definition fields “didactics of mass media” and “didactics of teaching media”.

Distinguishing between media which relate to the general definition of media and technical teaching media does not say anything about the fact that technical teaching media are rated a higher quality. Consequently, in class it is usually not good to give advantage to teaching media over mass media. With others it is possible to achieve an even greater teaching impact and organise the teaching process which is more suitable and more motivating than what teaching media can be since they are usually filled with exaggerated pedagogical connotations. On the other hand, teaching media do not require an equal aesthetic value and quality as e.g. a television program, which because of its graphic and aesthetic form, in a teaching context, it acts disturbingly. The intellectual level of a newspaper article can also be unsuitable for a certain pupil. In determining whether to use a certain medium in class, it is always questioned whether the chosen medium is suitable from an understanding point of view and does it make the process of learning and teaching easier, and to what extent can it further motivate the pupil, does it enter into any curricula and to what extent does the technical form of mediating help in presenting the given class subject.” From the above statement, it can be concluded that the use of media and multimedia is determined by the situation dynamics during class and that usage depends on elements of the didactic-methodical field, which means that uniform rules on when media can be used during class do not exist, but didactics criteria do, which form the basis enabling easier choice of media in class.

After having listed the definitions of the term medium, it is easier to notice and accept different interpretations of the term multimedia. All over the world there is the same word for multimedia. In English, German, French, Italian and Spanish (called medios multiples) the same word exists multimedia (Brozović, 2000:530). Multimedia in the Croatian encyclopedia is defined as "A synchronous display of a content in several forms, mostly in word and image, i.e. in a verbal form (printed or spoken text) and image form (static pictures, illustrations, graphs, photographs, charts, maps, dynamic images, animation, video). The term began to be used at the beginning of the 80s in connection with computers, and since then has been used in a wider context to describe anything involving the senses of sight and hearing in a computer environment. In a restricted sense, the term is used in three meanings, i.e. for signifying devices through which a message is carried, the format of the display of a message, and the senses that the recipient uses for receiving a message. The possibility of enriching displays of certain information or content e.g. audio or video record influences its comprehensibility, and so the encyclopaedias or textbooks are nowadays frequently made multimedia. It provides the user with the possibility of interacting with the content, which is a characteristic which makes it unique. Interactivity gives this medium an important psychological dimension which engages the user and gives him the power to act." (Kovačec 2005:513). Through the following definitions, multimedia is explained in the field of Information Technology (IT) and is based on computer, audio-visual display of contents. Mele (1993:23) defines multimedia as an original name for computer, in which he unites the modules for recording, processing and reproducing of sound, images (static and dynamic), text and other numerical information.

Jerram and Gosney (1995:3) state that multimedia is often referred to the enhanced possibilities of personal computers in processing not only text, but all kinds of visual and audio information.

Williams, Sawyer and Hutchinson define multimedia as presenting information on more than one medium, including text, graphics, animation, video, sound and voice. (1995:332). Multimedia is a "combination of sounds, graphics, animation and video. In the world of computers, multimedia is part of hypermedia, which connects the elements of multimedia with hypertext for creating links between information." (Štiglić, 1995:177). McFarlane (1997:160) also defines multimedia as a combination of high resolution images, digital stereo sound, text, video and animation. Lavrič (1999:163) in his research on use of multimedia computer programs points out the significance of multimedia in connecting and displaying: video, sound, text and animation with the help of computers.

In the English-Croatian and Croatian-English Computer Science dictionary, multimedia is used as software and as a computerised way of displaying information: "1. Program equipment which is constructed in such a way that it can simultaneously send various types of data (e.g. text, graphics, computer animation, television and sound) to different output devices (e.g. speakers, screens); 2. Computer type of displaying information by connecting audio and video components i.e. through the use of text, graphically displayed data, television, sound (voice), computer animation or digital film image; provides for versatile usage of computers." (Kiš, 2002:637). In the English-Croatian Computer Science encyclopedia dictionary, multimedia is shown as: "Using computers for the display of text, graphics, video, animation and sound all of which are connected, i.e. integrated into a whole unit.

Multimedia applications, which were long announced as a revolution in the IT industry, were not common because the required hardware was too expensive. With an increase in its effectiveness and the drop in the usage price, multimedia has become accepted all round and is frequently used. Almost all personal computers today are capable of displaying video material,

although the resolution depends on the power of the video adapter cards of the computer and its general processor." (Panijan, 2005:42) Collin (1995:8) states that the appearance of multimedia triggered a revolution in education, more precisely a new world of education, through the combination of various media such as sound and image, assisted by the personal computer. Matijević (2000: 124) uses the term multimedia "for multimedia software which can be found on a compact disc (CD) or is available to users on the Internet." There are linear and interactive multimedia programs. Linear multimedia programs guide the user onto the following or previous page while providing interactive users with the freedom of choice of content whose sequence is created by the users themselves. "Interactive multimedia gives you the freedom to investigate the unknown with the light-speed connections to the linked titles. This type of interactivity with dynamic elements such as video and music makes multimedia a suitable tool for learning – especially for children, since multimedia is similar to TV or video games, thus becoming part of the youth culture." (Jerram and Gosney, 1995:17).

In a similar way, Collin (1995:9) explains interactive multimedia as "the possibility of managing and allows you to freely navigate through a labyrinth of images, sounds and video. Clicking the mouse on the formerly defined area known as the hot spot, displays the other directory in the program; the connected directory can be made up of images, sound directory, video or a window filled with new information. There are several ways of defining hot spots in multimedia titles. Sometimes the cursor changes into the form of a hand when it is placed on a hot spot. Hot spots in the text are usually highlighted through the use of colour, underlining or capital letters." The common characteristics of the given definitions of multimedia in an IT context have their base in the structure of multimedia, as audio-visual components, program equipment and computer way of displaying information. Elements needed for multimedia research are:

monitor, hard disc, processor, memory, sound card, PC speaker, speakers, microphone and CD-ROM drive. There are several multimedia CD-ROMs.

In class, educative ones are recommended, relating to learning foreign languages, new developments in science and art (e.g. multimedia encyclopedia Microsoft Encarta, Microsoft Musical Instruments, virtual museums...), learning and adopting new techniques of reading as well as those intended for personal expression of users or examining their knowledge and abilities. learners can create even their own multimedia, draw, choose ready-made pictures, change their appearance, connect two or more into one (recompose), scan, print, make various video sequences, photographs, photo albums, web pages and animation. The computer in a teaching context is viewed as a means for teaching and learning. The first computers were mono-media. They served exclusively for input of text.

Multimedia is defined as the combination of various digital media types such as text, images, sound and video, into an integrated multi-sensory interactive application or presentation to convey a message or information to an audience. In other words, multimedia means "an individual or a small group using a computer to interact with information that is represented in several media, by repeatedly selecting what to see and hear next" (Agnew, Kellerman and Meyer, 1996).

Reisman (1994) described multimedia as a ray of "computer-driven interactive communication system, which create, store, transmit and retrieve, textual, graphic and auditory networks of information. Multimedia could be interpreted as a combination of data carriers, for example video, CD-ROM, floppy disks, Internet and software in which the possibility for an interactive approach is offered (Smeets, 1996; Jager and Lokman, 1996). Fetterman (1997) also viewed multimedia as those resources used for instruction

that include one or more media such as graphics, video, animation, image and sound in addition to textual information. He identified four important characteristics of multimedia as:

i. Multimedia systems are computer controlled

ii. Multimedia systems are integrated

iii. The information content must be represented digitally

iv. The interface to the final presentation of media.

The power of multimedia lies in the fact that it is multi-sensory, stimulating the many senses of the audience. It is also interactive, enabling the end users of the application to control the content and flow of information. This has introduced important changes in the educational system and impact the way we communicate information to the learners (Neo and Neo, 2000).

Ogunbote and Adesoye (2006) expressed that multimedia technology adds new dimension to learning experiences because concepts were easier to present and comprehend when the words are complemented with images and animations. Stating further that it has been established that learners retain more when a variety of senses are engaged in impacting knowledge; and the intensity of the experience aids retention and recall by engaging social, emotional and intellectual senses. Reinsman (1994) expressed that multimedia involves processing, storage, generation, manipulation and retention of multimedia system, and the resources could include text files, pictures, video, audio, databases, archives, library catalogs, course notes, relevant links to various websites and easy access to search engines available on the Internet (Shuell and Ferber, 2001).

Multimedia is in essence a presentation of information that incorporates multiple media such as text, audio, graphics, and animation. The representations can be redundant, incorporating the same content, or complementary, offering additional information. Multimedia need not be computerized, but computers offer some of the most seamless multimedia presentations. Moreover, digital multimedia, such as a simple CD-ROM, can offer teachers greater ease of presentation. The evolution of multimedia has made it very possible for learners to become more involved in their work. With multimedia technologies, they can create multimedia applications as part of their project requirements. This would make them active participant in their own learning process, instead of just being passive learners of the educational content. However, Babajide (2003) identified different types of multimedia communication, some of which include computer hardwares, computer softwares, public address systems, slides, overhead projectors, opaque projectors, videos, cassettes, audiotapes, cassette recorders, flip, time sequence, stream charts, Diorama still motion pictures among others.

**2.9 Concept of Teaching**

The practice of teaching comprises the intentionally designed activity of reducing that chanciness, that is, of increasing the probability that students will attain specific intended goals (for detailed perspectives on the goals and intricacy of the work, see Cohen, in press; Lampert, 2001; Lee, 2007). Feiman-Nemser and Buchmann (1986) define teaching as the work of helping people learn "worthwhile things," which, as they pointed out, adds an explicitly moral dimension. In the diagram below, sometimes called the "instructional triangle" (Cohen, Raudenbush, & Ball, 2003), teaching practice is the work— represented by the bidirectional arrows—of drawing on professional knowledge and skill to make these interactions most productive of students' learning

Teaching is essentially concerned with how best to bring about desired learning by some educational activity (Kyriacou 1995:1).The World Book Encyclopedia (2001) explains teaching as "helping other people learn". This makes teaching one of the most important ways that enable people to relate to one another as far as knowledge and skills acquisition are concerned. Teaching helps people acquire the knowledge they need to become responsible citizens, to earn a living and to lead useful rewarding lives. Teaching is also said to be a vehicle for transferring knowledge from one generation to next. Teaching is not a monologue but a dialogue in which one partner is vocal, but the other partner may, by simple participation in the form of a query, partake in the dialogue. According to Bruner (1994), teaching is the ability to impart knowledge to a group of people, or it is to show the way to something or a process. Similarly, Agun and Imogie (1988) also explain teaching as any interpersonal influence which may be exerted by somebody and which is aimed at changing the ways and behaviour of an individual. Teaching therefore concerns the activity of facilitating learning. So far as consideration of knowledge transfer is undoubtedly important, it is valuable in relation to the extent of quality of learning that is triggered.

According to Kochhar (1985), teaching is "an art with children as the raw material that the teacher has to deal with". As the author indicates, the teacher unconsciously designs the child entrusted to him or her and on purpose the teacher modifies the child. In this regard, teaching becomes a sublime art because it is impossible to separate the teacher and teaching. What this means is that the teacher mirrors himself or herself into the child; thereby putting an indelible stamp on the young, growing, plastic mind of the child who consequently generally takes after the teacher. Kochhar believes that teaching should be effective to make learning possible. The author explains that effective teachers learn how to adjust the level of difficulty of learning tasks for particular students. Sometimes this

means providing special challenges for the brightest in the class and providing more support and assistance for those who find a particular task too difficult.

**2.10 Concept of Learning**

On the otherhand, Kundu and Tutoo (2004) define learning as experience gained through modification. Learning is considered an active process and not a passive observation. According to Akimpelu (1991), learning is an activity carried out only by the learner; nobody can learn for another person, a person can learn without being taught. Learning, according to Smith (1999) it is the storage of information that can be reproduced. There is a link or an interaction between the learner and the environment during the learning process. During learning, experience is gained. Without learning all effort of learners and teachers are bound to become purposeless.

Further, LeFrançois (1985) also describes learning as a change inhuman disposition or capability that persists over a period of time and is not simply ascribable to the process of growth. The kind of change called "learning" exhibits itself as a change in behaviour, and the inference of learning is made by comparing what behaviour can be exhibited after such treatment. Learning is a process. It involves changes occurring over a relatively shorter period of time which enables the learner to respond more adequately to the situation. Thus, we learn to play the piano, we learn fractions, we learn to drive. On the other hand, we grow in intelligence and we grow in moral stature. In some cases, the factor of growth and learning will be so inextricably intertwined that either or both words will need to be used.

True learning produces changes in the conduct (behaviour pattern) of the learner. Every experience produces a change in the mental structure of the learner which in turn affects the conduct of the learner. This, in short, is the goal of learning (Kochhar 1985). The

ability to learn however differs from age to age and from individual to individual and that ability to learn involves not only intellectual capacity but also social, economic, perceptual, physical and psychological factors. Human beings learn through their senses. The ability to see, feel, hear, smell and taste therefore provides the means by which an interaction between man and his environment takes place.

However, Lowenfeld and Brittan (1982) also assert that the development of perceptual sensitivity should become a most important part of the education process. In their view, learning does not merely mean the accumulation of knowledge; it also implies an understanding of how the knowledge can be utilized. It can be deduced that learning is the process whereby new behaviour is acquired, strengthened or weakened as a result of experience gained in the form of either perception or behaviour. This means that learning is an active and not passive activity that depends on the learner. Learning is a personal involvement, meaning the learner should be able and willing to assimilate the material being presented.

According to Kyriacou (1985), there appears to be three central and crucial aspects to any consideration of student engagement in the activity of learning. These are attentiveness, receptiveness and appropriateness, which are explained in the following sections.

- Attentiveness: This relates to the ways in which teachers can elicit and maintain a high level of student attention and concentration by varying the learning activities, getting students actively involved, and utilizing students' interests,
- Receptiveness depends in part on the ways in which teachers can make use of the different sources of student motivation towards learning.
- Appropriateness refers to the ways in which teachers need to match the learning

experience to each student's current state of knowledge and understanding, and at the same time ensuring that the learning activities actually foster the desired educational outcomes, This implies monitoring of students' progress, presenting quick corrective feedback, structuring and presenting activities to facilitate meaningful learning, and ensuring that cognitive processes being fostered and demonstration of learning required are being appropriately assessed through questioning or tests.

Without realizing it we learn all kinds of things in all kinds of ways. Everybody learns different things in different ways. How one learns depends on what is to be learned. We learn how to ride a bicycle by doing (kinesthetic learning); make bread by kneading dough with the hands (tactile learning); to sing, play a musical instrument, or appreciate music by listening (auditory learning); and, learn about the movement of the stars and planets by observing (visual learning). Our senses bring all kinds of information to us. The fact that people learn in different ways implies that teachers should not expect all their students to be skillful in learning what they teach in the same way and also have the same abilities in all subjects.

What needs to be recognized is that the very nature of teaching imbues the teacher with a background of experience that is quite different from that of the pupil. The circumstances make it necessary for the teacher to attempt to provide actual experiences that will make conceptualization and interpretation possible for the pupils. Where involvement with actual objects is unsafe, inconvenient or impractical, Farrant (1996) recommends instructional media as useful substitutes for the actual experience. Since ability to interpret is crucial to effective communication, anything that helps pupils make meaning of words will create an understanding of the object of the lesson. The idea is that involvement of the learner in relevant experiences which appeal to the senses is a vital part

of the communication process that results in greater interest, correct interpretation, clear understanding and retention of what is learned.

**2.11 The Concept of Evaluation**

Evaluation is a systematic determination of a subject's merit, worth and significance, using criteria governed by a set of standards. It can assist an organization, program, project or any other intervention or initiative to assess any aim, realisable concept/proposal, or any alternative, to help in decision-making; or to ascertain the degree of achievement or value in regard to the aim and objectives and results of any such action that has been completed (Staff, 2002). The primary purpose of evaluation, in addition to gaining insight into prior or existing initiatives, is to enable reflection and assist in the identification of future change (Del Tufo, 2002). Evaluation is often used to characterize and appraise subjects of interest in a wide range of human enterprises, including the arts, criminal justice, foundations, non-profit organizations, government, health care, and other human services.

Evaluation is the structured interpretation and giving of meaning to predict or actual impacts of proposals or results. It looks at original objectives, and at what is either predicted or what was accomplished and how it was accomplished. So evaluation can be formative that is taking place during the development of a concept or proposal, project or organization, with the intention of improving the value or effectiveness of the proposal, project, or organisation. It can also be assumptive, drawing lessons from a completed action or project or an organisation at a later point in time or circumstance. Evaluation is inherently a theoretically informed approach (whether explicitly or not), and consequently any particular definition of evaluation would have be tailored to its context – the theory, needs, purpose, and methodology of the evaluation process itself. Having said this, evaluation has been defined as:

- A systematic, rigorous, and meticulous application of scientific methods to assess the design, implementation, improvement, or outcomes of a program. It is a resource-intensive process, frequently requiring resources, such as, evaluates expertise, labor, time, and a sizable budget.
- "The critical assessment, in as objective a manner as possible, of the degree to which a service or its component parts fulfills stated goals"(Paperboy, 2007). The focus of this definition is on attaining objective knowledge, and scientifically or quantitatively measuring predetermined and external concepts.
- "A study designed to assist some audience to assess an object's merit and worth" (Shuffleboard).[4] In this definition the focus is on facts as well as value laden judgments of the programs outcomes and worth.

The main purpose of an evaluation can be to "determine the quality of a program by formulating a judgment" Marthe Hurteau, Sylvain Houle, Stéphanie Mongiat (2009). There are two functions considering to the evaluation purpose. Formative Evaluations provide the information on the improving a product or a process .Summative Evaluations provide information of short-term effectiveness or long-term impact to deciding the adoption of a product or process (Staff, 2011).

Not all evaluations serve the same purpose some evaluations serve a monitoring function rather than focusing solely on measurable program outcomes or evaluation findings and a full list of types of evaluations would be difficult to compile. This is because evaluation is not part of a unified theoretical framework, (Ellett,1990) drawing on a number of disciplines, which include management and organisational theory, policy analysis, education, sociology, social anthropology, and social change(potter, 2006). However, the strict adherence to a set of methodological assumptions may make the field of evaluation more acceptable to a mainstream

audience but this adherence will work towards preventing evaluators from developing new strategies for dealing with the myriad problems that programs face (potter, 2006).

**2.12 The Imperatives of Multimedia Resources in Social Studies**

The use of multimedia in education has proven its importance due to its positive impact on the teaching and learning process. The term multimedia describes any system that combines two or more media into a single product or presentation, such as a software program or a Web page. It is a presentation consisting of words, sound, and pictures that is designed for meaningful learning (Mayer, 2005a; 2005b; 2005c). Although interactive multimedia capabilities are constantly evolving and have become very popular among educators in recent years, the body of research on interactive multimedia as an instructional approach is not yet extensive (Alessi & Trollip, 2001; Lockard & Abrams, 2004). According to Mayer (2003), a multimedia instructional message is "a presentation consisting of words and pictures that is designed to foster meaningful learning.

Thus, there are two parts to the definition: (a) the presentation contains words and pictures, and (b) the presentation is designed to foster meaningful learning" (p. 128). Mayer (2003) and others (Brouwer, Muller, & Rietdijk, 2007; Thompson, 2007) have emphasized the unique contributions multimedia brings to the learning experience. Gilakjani (2012) mentioned three reasons and the rationale for the use of multimedia in the classroom. According to him, its use increases students' interest level, enhances their understanding, and increases their memorizing ability. There are different learning styles for different students and multimedia provides a variety of learning styles at the same time to cater for the requirement of different students and address individual differences. In spite of some potential disadvantages of Multimedia resources, the advantages in the teaching and learning process have been documented.

Educational technology and interactive multimedia play an increasingly vital role in efforts to move social studies from the rote memorization of dates and information toward a more student-centered, hands-on, authentic learning experience (Bitter & Pierson, 2005; Trinkle & Merriman, 2000). And despite movements within the discipline to promote student computer use to facilitate reflective inquiry, decision making, and problem solving (Evans, 2004; National Council for the Social Studies, 1994), social studies education for the most part continues to focus on traditional, teacher-directed, lecture and textbook-based approaches and activities (Diem, 2000; Friedman & Hicks, 2006; White, 1999). The research base on the effectiveness of technology as an instructional component for teaching social studies is quite limited (Cantu, 2000).

Nonetheless, there are data indicating that when integrated effectively, multimedia technology can support history and social studies learning by promoting student-centered instruction, increasing learner motivation, and extending and deepening understandings of historic and civic concepts (Molebash, 2002). Some studies have reported modest positive outcomes for several groups of students who used computer-adapted tutorial programs for the practice of social studies skills (Twyman & Tindal, 2006). In two research studies conducted a full decade apart, Higgins, Boone, and Lovitt (1996) found that hypermedia study guides resulted in positive gains for ninth grade social studies students with regard to recall, comprehension, and attitudes, while Boon et al. (2006) reported similar results in their investigation of high school students' use of technology-enhanced cognitive organizers.

Multimedia is multi-sensory that stimulates multiple senses of the audience at a time. Its interactive nature enables teachers to control the content and flow of information. In Nigeria, the use of multimedia in classroom teaching is very limited due to multiple reasons. These

reasons include high cost of multimedia, computers, and other related infrastructure, and lack of computer-literate teachers and technical staff. Teachers' attitude towards its use is another problem. Multimedia elements have paramount importance in teaching (Altherr, Wagner, Eckert, & Jodl, 2004). With the help of multimedia, different phenomena and processes can be presented vividly, simulate complex content, and present different levels of abstraction. This helps in meaningful and authentic learning. Multimedia resources are useful especially when students of have low motivation and low prior knowledge (Singh, 2003). "Multimedia is characterized by the presence of text, pictures, sound, animation, and video; some or all of which are organized into a coherent program" (Phillips, 1997). According to Junaidu (2008), data communication is possible through multiple channels and if information is presented through more than one channel, it will improve learning.

There are data to support the assertion that multimedia capabilities are unique because both sensory stimulation and user navigation in interactive multimedia (IMM) parallel students' natural ways of learning (Bagui, 1998; Gibbs, Graves, & Bernas, 2001). Roblyer (1999) asserted that the multiple channels through which multimedia communicates to the learner seem to be the source of its benefits. The sound, images, animation, and interactivity in electronic books have also been shown to increase motivation and comprehension scores as compared to students' reading of printed texts (Greenlee-Moore & Smith, 1996; Labbo, 2002). According to some researchers (Becker, 2000; Mayer, 2003; Moreno, 2006), interactive multimedia is one of the best technologies to help students learn. Although claims such as this one elicit varying responses among scholars and educators, some research appears to indicate that IMM can indeed provide learning benefits (Hancock, Knezek, & Christensen, 2007).

Meaningful learning environment recommended by cognitivism and constructivism can best be created with the help of multimedia. Singh (2003) cited the studies of Kulik, Kulik, and Cohen (1979), Bangert and Williams (1983), Schmidt, Weinstein, Niemic, and Walberg (1985), Kulik, Kulik, and Schwalb (1986), Bosco (1986), Fletcher (1990), and Khalili and Shashaani (1994), which indicated the effectiveness of Multimedia resources over the traditional lecture methods. Studies of Kulik et al. (1980), Kulik, Bangert, and Williams (1983), and Kulik et al. (1986) (as cited in Singh, 2003) indicated that learning occurs in less time in multimedia teaching environment as compared with the traditional method of instruction. Similarly, Multimedia teaching environment addresses different styles and approaches to learning and helps students construct their own knowledge (Riding & Grimley, 1999). Jarosievitz (n.d) in his research work titled "ICT in Physics Teaching for Secondary Schools and Colleges" mentioned that multimedia-assisted teaching (MAT) is more attractive and interesting and recommended that classes should be made more multimedia-based to enhance students' motivation and understanding. The use of ICTs in the teaching and learning process has become an important feature. Multimedia-aided teaching (MAT) is a means of instructional delivery usually used with the traditional method of teaching (Rolfe & Gray, 2011). Therefore based on the foregoing, it is clear that the importance of multimedia resources in teaching and learning cannot be over emphasized.

Possible through systematic interaction between teachers and learners, it happens every day and involves teacher, learner, methodology and audio-visual materials interaction. The use of audio-visual instructional media in teaching process provides the basis for improved teaching and learning social studies. They are designed, produced and use to achieve specific instructional goals. In journal of ANCOPSS (All Nigeria Conference of Principal of Secondary Schools, Vol No 4 1983, a implementation, Mr. ALOYSIUS MAPACO (1983) writing on the "the place of Audio-visual materials in the implementation of the National Policy on Education has

this say; “with aids, children can learn at their own pace”. According to him, learners are supposed to SEE, HEAR, FEEL, SMELL and TOUCH, whatever they are learning about. According to section 10 of the National Policy on Education point out the relevance of Audio-visual instructional material in the section of 10th policy has the following objectives:

a. To develop assess and improve educational programmes

b. To enhance teaching and improve the competency of teachers

c. To make learning more meaningful for children

d. To reduce educational costs

e. To promote in service education

f. To develop and promote an effective use of innovative materials

Hence, the writer focuses on some relevant areas which are very effective in teaching/learning social studies. These include

i. Audio-visual instructional material’s: provides sources of information that are meaningful to both teacher and students

ii. In enables the teacher to widen the experiences of the students

iii. It stimulates the interest in students

iv. It encourage individualized studies which in effect enable one to work according to his pace

v. It makes for learning active participation in the lesson and help to stir up the student’s imagination and provokes in them the spirit of enquiry.

vi. It encourages readiness both in teaching and learning

vii. Performance in learning is achieved

viii. Improvement of student perception

ix. Illustration of relationship among concepts

x. It stimulate materials prevision

xi. It illustrate attributes of concept

xii. Demonstration of perceptual motor skills

xiii. It provides feedback to students and teachers

xiv. It facilitates repetitive activities

xv. Helping to reduce amount of time in teach or learn.

xvi. Help to overcome intellectual barriers to learning and to recreate common and past experiences.

xvii. It is used to determine the performance of students or group through evaluation

xviii. It enhances learners' positive attitude towards the course

xix. Develop the ability to adapt to changing environment

xx. Finally the use of audio-visual instructional media materials makes the teacher's work lighter.

Ideas or concepts which could have taken him sometime to explain become easily understood as teaching activities do not come from the teacher alone.

The educational values of audio-visual instructional materials in the teaching learning social studies, in junior secondary schools as follows;

1. Audio-visual materials are used to bring situation near to students things or object that can be brought into class for the purpose of teaching can be put In motion picture, film to show them

2. It makes learning more permanent to the students as the saying goes "what I see I remember.

3. It reduces too much talking on the part of the teacher, because good and nice material are self-explanatory

4. To arouse the interest and curiosity of the learners in motivation bid

5. They provide direct first and experience with the reality of social and physical environment

6. It simplifies abstract, novel content, learning experience and concept

7. Audio-visual materials enable students to acquire experience, knowledge that they would otherwise not have appreciated and understood by learning only from the teacher.

8. It save the teacher a lot of time which may be employed in other facts of meaningful teaching of learners by given the astronomical rise in enrolment trend in teachings and learning of social studies

9. It makes what is being taught very real to the perceptual level of the learners.

### 2.13 Types and Classroom Applications Multimedia

There are numerous types of multimedia. Below we review a selection of different multimedia forms, focusing on their potential for supporting diverse learners.

**I. Talking Books and Speech Synthesis**

Digital texts can be read aloud using recorded human voice or synthetic text-to-speech programs. Read-aloud is an intrinsic feature of so-called talking books, but with text-to-speech software, virtually any digital content—including web-based texts—can be read aloud, with or without synchronous highlighting of the printed text. Speech synthesis can be segmented at a variety of levels, providing feedback at the level of the passage, sentence, word, onset rime, syllable, or sub-syllable. Read-aloud offers potential benefits to many students, including students with visual deficits, students with decoding problems, and reluctant readers. In

addition to providing access to curriculum content for those who cannot see or decode printed text, read-aloud can support the development of key literacy skills such as fluency and reading comprehension, and increase engagement and motivation. (Borgh & Dickson 1992; Elbro, Rasmussen & Spelling1996; MacArthur, Ferretti, Okolo, & Cavalier; 2001).Text-to-speech is also a beneficial writing tool. It may be easier for students to recognize errors when listening versus reading a composition. By using text-to-speech to read back the text they have written, students may be able to revise more successfully.

## II. CD-ROM Storybooks

CD-ROM storybooks offer digital text in combination with features such as animations, illustrations, speech, and sound. For example, a CD-ROM storybook might offer the story text together with animations, vocabulary definitions, and sound effects. Some storybooks incorpoIIrate an audio version of the text. CD-ROM storybooks offer great potential for engaging students, and some incorporate valuable literacy supports. Thus, they can benefit reluctant readers and students with deficits in basic literacy skills. However, their multimedia features are not always instructionally germane. Some storybooks feature entertaining animations and sound effects that, while entertaining, do not directly support access or learning. In fact, they may be distracting for some students. Thus, teachers are wise to select CD-ROM storybooks carefully and with consideration of individual student characteristics (Doty, Popplewell, & Byers 2001; Trushell & Maitland; 2005).

## III. Video/Videodiscs

Video/Videodiscs offer a means to contextualize curriculum content and instruction across the curriculum. For example, video can be used to anchor mathematics instruction to an authentic context. That is, video can be used to present to students a real-world context within which

mathematical problem-solving can then be situated. Video/videodisc-based anchored instruction can similarly be applied to contextualize instruction in other content areas. These approaches are valuable in helping to engage and motivate students, in providing students with alternatives to text, and in supporting differences in background knowledge (Bottge 1999; Xin, Glaser, & Rieth; 1996).

## IV. Hypermedia

Hypermedia refers to hyperlinked multimedia—the linkage of text, audio, graphics, animation, and/or video through hyperlinks. For example, a hypermedia study guide might offer illustrated textbook content hyperlinked to web-based video and other content, glossary entries, and comprehension questions. Other hypermedia applications for the classroom include supported digital reading environments and lessons (MacArthur & Haynes1995). Hypermedia offers a powerful means to integrate curriculum content with instructional supports and address varied student needs. Digital texts can be enriched with a range of instructional supports such as vocabulary definitions, glossaries, translations, explanatory notes, background information, and instructional prompts. Each of these supports can take the form of varied media. For example, vocabulary definitions might be presented as text, pictures, and/or animated graphics. Background information might be presented as a map, video, annotated bibliography with text and audio or illustrated timeline (Moore-Hart 1995).

Hypermedia can support differences in students' ability to access specific media forms and differences in their literacy and media literacy skills; they also provide alternative means to engage learners. Using hypermedia, teachers can help a variety of learners, including English language learners, second language learners, and students with comprehension problems, to overcome important barriers posed by printed texts.

Moreover, because the various supports are present as hyperlinks, students can access them individually, as needed, and on-demand Tierney, Kieffer, Whalin, Desai, Moss, Harris, et al. (1997).

In addition to offering new means to present curriculum content, hypermedia offers new means for students to demonstrate knowledge and skill. Using hypermedia design software, students can construct multimedia compositions that afford them a much greater range of possibilities than text. This is particularly important for students whose difficulty with writing might obscure their mastery of curriculum content.

## V. Computer Simulations

Computer simulations are computer-generated versions of real-world objects (for example, a brain) or processes (for example, an election). They may be fully automated or interactive, eliciting user input. Computer simulations are a means to "open up the walls of the classroom," providing students with an opportunity to observe, manipulate, and investigate phenomena that are normally inaccessible—an orbiting satellite or foreign culture—using tools and materials that are not available in the classroom. In this respect, they provide an advantageous alternative to learning that might otherwise rely on lecture and printed text. Not only do simulations reduce barriers for students who struggle with these conventional media, they provide multiple models for skill learning, and can increase the immediacy and authenticity of learning content, which is advantageous to many learners (Goldenberg, Heinze, & Ba, 2004; Sierra-Fernandez & Perales-Palacios; 2003).

Computer simulations can be used to increase content knowledge. For example, a simulated marine ecosystem can be used to teach ecology concepts. Simulations are particularly well suited to confronting students with their misconceptions about essential learning concepts and helping them to develop more accurate conceptual models. Simulations can also be used to develop skills. For example, simulated science experiments can be used to facilitate mastery of science process skills. Computer simulations are available on the web, as well as in software form (Stohl & Tarr, 2002; Woodward, Carnine; & Gersten; 1988).

### 2.14 Audio-Visual Media

Fatunmbi (2005) stated that studies have shown that there is improvement in teaching learning process through the use of audio-visual aids (video). According to him, video can be used to provide real experiences in almost all field of learning. It can be made to repeat information and demonstration as many time as possible, thereby, learning is made easier, realistic and concrete for learners. It allows for self-instruction it provide a cheap and fast way of disseminating educational information and practical skills. Akpabio (2004) view audio-visual as a potential window that can expose the minds and heart of many to modern practices and environmental concepts, far more than what the traditional classroom teaching can achieve. He stated further that youth and children are so enthralled with home video films that they are described as video crazy. This interest can be exploited in the formal school system for teaching-learning in vivid and entertaining manner. Cuban (2001) expressed that video lectures are feasible through the use of personal computer. They are not recording of classroom lectures but cover lecture material as screen displays of content files with audio narrative are added. They can be produced before a course begins or developed as it progresses. Sarker and Nicholson (2005)

declared that be accepted and used by students. they must provide an enjoyable or at least satisfactory learning experience, be penciled by students as providing a time-efficient study resources and or be perceived as improving understanding and grade performance.

Dunn (2000) found that video lectures make available instructor quality lectures that students can view and study as much as needed to meet their individual learning needs. They are detailed step-by-step explanation of materials used in classroom lectures and are presented at a delivery pace that is significantly slower than what can be accomplished in the limited time available in the classroom. They can be paused and repeated and thus can be studied by students at their own learning pace. Additionally, video lectures are more focused learning experiences than the traditional study of a textbook. Beshnizen and Van Puthen (2000) declared that video can help the teacher to work more closely with the lecture and reduce the need for repeated explanation. It has the capacity to motivate learners and difficult skills are better viewed. Especially with the slow motion. Videotape presentation a more realistic package and gives the learners who one experienced television views, familiar ground to work with Whatley and Ahmad (2007) stated that, for video lectures to be most effectively used by students, they should appeal to their learning style preferences. video lecture appeals are as follows (a) their content is 100% relevant to course performance requirements and it is presented at a more detailed pace than classroom lecture (b) video can be replayed and enable students to repeat the instructor's explanation (c) they can be viewed at a time, location and under environmental conditions of a student’s choice (d) their portability enables listening and study without the competing distractions that often accompany classroom lecture.

Brectit and Ogilby (2008) who worked on audio-visual aids (video) lecture and teaching strategy found that, students who used the video were 73% of the respondents. the high use rate

suggests that students broadly accept and use video lectures, as a form of computer-based instruction and as an enhancement of traditional classroom courses. Moreover, 31.5% viewed the video in advance of classroom lectures, 72.2% used it to do homework, 72.4% used it to prepare for examination, 63% agreed that video is good for tutoring help and 38.9% believed that it helped to raise their course grade. Isiaka (2007) who researched on the effectiveness of video as a media found that video group performed better than the group without instruction media. the video group did significantly better than the chart group. He concluded that video was an effective medium for teaching-learning in schools.

Devaaney (2009)discovered that all his respondents were favourable to video tutorial 75% reported that the tutorials were enjoyable and interesting, 84.6% indicated that, it met their needs, 100% reported that they were straight forward and easy to understanding than textbooks and guide sheets. He concluded that video is a viable tutorial tool for online courses. Alaku (1998) stated that teachers' effectiveness depends on his use of appropriate instructional strategies and audio-visual aids. Appropriate instructional strategies portray good teaching techniques and successful learning. They assist students to enjoy and understand lessons easily especially when they are attached with appropriate methodology.

Ayinde (1997) opined that an intelligent use of audio-visual aid will save time and stimulate students interest. It increases the retention of knowledge and stimulates understanding and attitude. They help students to go recognizing discussion. More so, they facilitate independent study aid communication, create a variety of sensory and make instruction more powerful and immediate. Kindler (2006) as quoted by Fakunle (2008) declared that people generally remember 10% of what they read, 20% of what they hear, 30% of what they see 50% of what they hear and see, 70% of what they say and 90% of what they say as they do a thing. Also

National teacher Institute (2006) state that Chinese concluded that "i hear, i forget", "i see, i remember", "i do, i understand". hence from the illustration above, since audio-visual media aids has to do with hearing and seeing it could be suggested that it is a vital tools for learning and teaching. However, for adequately qualitative, and effectiveness audio-visual aids should funded and experts must be available.

**2.15 Types of Audio-Visual Instructional Media**

According to Azikwe (2007), Instructional media cover whatever the teacher uses to involve all the five senses of sight, hearing, touch, smell and taste while presenting his/her lessons. In a similar vein, Adegun (1997) says instructional media are things which are intended to help teacher to teach more effectively and enable the students to learn more readily. Instructional media are information carriers designed specifically to fulfill objectives in a teaching-learning situation. They are very important in social studies teaching especially the content of the subject, because they facilitate the direct association between sounds and their symbols and also words and the objects they represent. They help to vividly illustrate meanings of things because they are associated with the materials used by the teacher to improve the quality of his teaching.

Instructional media according to Mustapha (2007) are usually classified based on the characteristics they exhibit. There is a wide variety of instructional audio-visual media which could be profitably and effectively used in the social studies classroom learning situation. Therefore audio-visual instructional media materials are materials that the teacher work as communicating model and identification figure can be supported by a wise use of variety of devices with meaningful strategies in enhance effectiveness of teaching and learning of social studies in junior secondary schools. Despite the well varieties of audio-visual instructional media

materials which is utilizable in teaching-learning having activities in general. Certain materials are most appropriate for effective teaching-learning social studies in junior secondary school of educational zone, Kaduna state. Therefore, the types of audio-visual instructional materials which are mostly relevant to social studies as follows:

1. Overhead projectors

2. Slide projectors and filmstrips projector

3. Film projectors and video player/projector

4. Multimedia presentation

5. Video tape recorders

6. Television

7. Computer

8. Motion picture

**Overhead Projectors**

Using 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 the students while projecting transparencies in a lighted room (Blythe-Lord, 1991 and Kemp & Smellie, 1989). The effect of using overhead projectors in the teaching-learning social studies:

1. Motivate students to research and discuss core artistic and technological components of the medium.

2. Promote general cognitive skill development and visual literacy.

3. Inspire creative expression through the communication of ideas from students' own imaginations.

4. Encourage achievements in eight areas of personal life skill competency i.e. communication, an ability to articulate ideas, intention cooperation, interpersonal skills, an ability to conceive, visualize and invent improvisation creativity, self-discipline and self-control problem solving.

5. Students explain how scientific and technological advances have impacted set, light sound and electronic media production.

**Slide Projectors**

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 contained in film strips which are series of small slides photographed in permanent sequence on a 35mm or 16mm film either in colour, or black and white. Some film strip projectors can also be used to project slides. Trainee teachers can use film strips 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 especially social studies classroom and the rate of presentation for classroom use can be controlled by trainee teachers using remote, reversal and advance mechanisms. Their presentations can be accompanied with print or audio recording (Blythe-lord, 1991, Erickson &Curl, 1972, Farrant, 1981. kempt and Smellie, 1989, and Ulittich & Schuller, 1973).

**Film Projector and Video Player/Projector**

Film projectors and videotape projectors are used to project motion, pictures when motion is significant factors of a subject. Educational films are in black and white. There are also sound and silent motion pictures. Videotapes 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 through the digital projector for group use.

**Motion Pictures**

They are relevant for all subject disciplines, social science (social studies) 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 stimulation. Motion pictures are also very good for ensuring students' positive attitude toward the subject of instruction. They can also be used to modify students' attitude in such areas like social studies.

**Multimedia**

The term multimedia means "more than one media." According to Hostetler (2001). Multimedia is the use of computer to present and combine text, graphics, audio and video with links and tools that let the user navigate, interact, create and communicate. In other words, multimedia is the combination of various digital media, into an integrated multi-sensory interactive application or presentation to convey information to an audience (Demodharan and Rengaranjan 2007; Butcher). Powell, (2005) Other than that, interactivity is also part of the elements that are required in order to compel interactive

communication process through the use of multimedia. This involves combination of visual materials. It is a learning resource package which can be effective when several media are used concurrently for specific instructional purpose. When two or more pictures are projected simultaneously, on one or more screen for group viewing, the compound concept multi0-image is used. However, when two or more different types of media are used, sequentially in a single instruction for self-paced learning package, the term multimedia is used. Using multimedia or multi-image, a large amount of information can be passed across to students, and high interest can be created in students. Furthermore, media can be tailored towards different objective outlined for the lesson. Multimedia can be effectively used for instructional purposes (Burden and Byrd, 1999). The use of multimedia in teaching and learning social studies is not only able to maintain student's interest but also able to make them enjoy learning. Furthermore, cairn cross and mansion (2001) pointed out multimedia has the potential to create high quality learning environments. The key elements of multiple media, user control over the delivery of information, and interactivity can be used to enhance the learning process creating integrated learning environments.Multimedia based learning is becoming increasingly popular. While it has limitations, and certainly should not be seen as a substitute for face to face interacting, it does have numerous advantages for both teachers and students. For example, the information contained on the internet is unlimited and evolving. It is up to date, inexpensive to obtain and searchable.

**Television**

This is an electronic apparatus that receives such signals, reproducing the images on a screen, and typically reproducing accompanying sound signals on speakers. The visual

and audio content of such signals which is the system or process of producing on a distant screen a series of transient visible images, usually with an accompanying sound signal. Electrical signals, converted from optical images by a camera tube, are transmitted by UHF or VHF radio waves or by cable and reconverted into optical images by means of a television tube inside a television set. Is a device designed to receive and convert incoming electrical signals into a series of visible image on a screen together with sound? Also is electrical equipment with a glass screen which should broadcast programmer with moveable pictures and sound by radiolabels. Experiences has shown that television has the qualities of training people into a immediate contact with happening situation event where it has great possible possibilities as an aids in the teaching-learning of social studies can gain usually from selected programme in their various schools. It expands and amplifies limited instructional resources make a few excellent teacher to the work of many and thereby equalizing learning opportunities among learners. Television, of course, offers information in multiple forms, not just images, but motion sounds and at times, text. Research has shown that multiple tracks of audio and visual information convey powerful learning benefits as each source complements the other.

We have all heard the proverb "seeing is believes". Research has shown that seeing is remembering, too. People generally remember about twice as much when they see and hear something, than when they only see or hear it. Thus, television's combination of sound and imagery renders it a powerful aid to learning.

**Video Tape Recorder**

This is a machine records and produce sounds a teacher or class may be able to record themselves or any other suitable material, event they need which can be used to improve and promote teaching and learning social studies activities in the junior secondary schools. Evidence indicates that video far from being supplanted, is becoming increasingly essential part of classroom learning. As the long history of research clearly shows, the educational value of visual media is positive and significant, while the format, delivery information and storage options, videotape is now and will continue to be an effective, engaging and essential tool in our classrooms. Today's students are immersed in media. (Calvert 2001). These findings support the common observation that television is already an important and widely used instructional resources. As the presence of broadband, digital media and streaming video tape recorder increases, the likelihood is that video will become even more essential classroom resources in the teaching and learning social studies. The report will highlight examples of video and TV use in a variety of academic disciplines as drawn from the research literature, and will offer practical recommendations that broadcasters and educators can use to enhance educational effectiveness of videotape in the junior secondary schools. By demonstrating the substantial impact that television has had on the teaching and learning social studies in classroom, and providing an accessible set of tools and guidelines we hope to offer a comprehensive overview of the educational potential of video tape in junior secondary schools.

**Computer and Internet**

Nowadays, the use of technology in education has become more popular. Special attention has been given to the adaptation of computer technology into teaching-learning

process for effective learning and increasing students' achievement. In recent years, it has been realized that there is an immense benefit in applying computer technology in social studies classroom. The first purpose of this study is to review computer and internet-supported instructional strategies in the social studies classroom. The second purpose of the study is to investigate the degree of application of these strategies in the social studies classroom. UNESCO, (2002) as cited in Orhun, (2003, p1). There is an increasing research on the effectiveness and benefits of the integration computer technology in education in recent years. Sheffield (1996) stated that as a result of the recent development in technology, computers and internet have become more important teaching tools in the social studies classroom. Vantosson (2001) points out there are many benefits of computer-internet use in the classroom's physical limitations and expanding studies, experiences, development of student's inquiry and analytical skills and expanding students' experience with visual technologies. It is considered that technology is the main support for the students learning developments and the computers are the main technology support as a tool for effective learning and teaching process.

Likewise, Pye and Sullivian (2001) in a study among middle schools studies teachers found that almost 22% of social studies teachers used drill and practice and tutorials in their classrooms. Although the study indicated that other computer software and the internet become more frequently used teaching tools in social studies as opposed to drill, practice and tutorials, it seems that these applications are still important teaching tools for social studies teachers. Although such computer applications are very appropriate to be used in the social studies classroom, is not much research on the effectiveness of these applications. Similar results were reported by Higgins and Boone (as cited in Berson,

1996) who found small, but positive gains in secondary students performance and attitudes toward the subject matter when computer-drill and practice programme or hypermedia study guides were implemented. It seems that data on the effectiveness of drill-and-practice, tutorials and study programme showed positive effects on students' outcome.

According to Berson (1996) however, there is need for further research to address questions regarding the effects of these application on the taxonomic level of students. Hence, research showed that computer and internet supported teaching strategies have crucial roles facilitating development of students critical thinking, problem solving and decision making skills. Likewise, Whitworth and Berson (2003) pointed out that, within the social studies technology, has served a dual role as an important instructional tool that may have a significant effect on the global, political, social and economic functioning of society. According to them, as a method or topic instruction, computers and technology may have significant impacts on social studies education. There are a number of computers and internet supported teaching strategies that are applied in the social studies classrooms as well as other disciplines. According to national council for social studies (2004), social studies is the integrated study of the social sciences such as anthropology, archaeology, economics, geography, religion, political, philosophy, history, law, psychology and sociology, as well as appropriate content from the humanities and natural science. Therefore, computer provide equalizing opportunities to young children with disabilities by providing their students and teachers with training, technical assistance and products relating to assistance technology particularly computers and adaptive peripherals, has provided these students, young children and their teachers with tools for

equalizing opportunities. In many recent years, cognitive development, motor development, social development, and self-esteem to name a few.

Computers are extremely patient and uncritical when student make mistakes marvelous characteristics which make them quite effective for students learning. Not only that, the newer interactive software allows student to explore and experiment in a safe environment where there is no wrong answer and where a student may experience success, sometimes for the first time. Computers are an especially important learning tool for children or students with physical disabilities. Assistive technologies, including computers and adaptive devices e.g. switches, alternative keyboards, touch tables provide children with disabilities a variety of tools that encourage autonomous behavior and increase the probability that they will interact with their environment (Hutinger, 1996) for example, a student who is unable to hold a pencil can use the computer, a switch or touch window, and a graphics program to draw. Parents and teachers involved in Macomb projects' longitudinal research study on technology's effectiveness for students with multiple disabilities reported that their students showed greatest gains in area of social and emotional behaviors. Including enhanced self-concept, independence, social interaction, cooperation and exploratory play".(Huting, Johanson, Stoncbunner, 1996).

Gains in cognitive, motor and communication development also resulted from assistive technology use. Both verbal and nonverbal students can use the computer as a communication tool. Software provides both subjects and purpose for conversations for those who are able and willing to speak, social interactions among students using computer occur spontaneously and should be encouraged. Students for whom verbal

communication and or social interaction is difficult are motivated to increase skill in these area through their interactions with the computer. Finally, computers should be used in part, to enable teachers to improve the curriculum and enhance students learning effectively.

### 2.16 Principles for Selecting Multimedia Resources

While the instructional value of audio-visual medial material in enriching the teaching of students by teachers cannot be doubted, media in themselves cannot assure good teaching. Their effective use can be through the integration of media in teaching-learning social studies by teachers. The following guidelines or principles can be followed to ensure successful integration of audio-visual material in teaching social studies (Blythe-lord, 1991, Farrant, 1981 and Michealis, 1975)

1. A teacher should consider the entire school environment as a laboratory for students' learning and the practical application of his/her knowledge. Therefore, instructional material selection, arrangement, and rearrangement of learning environment and the use of materials and equipment to promote learning are basic in self-contained classroom.

2. The entire neighborhood of the school and community resources should be viewed and utilized as a laboratory for student learning.

3. Media should be designed, produced, selected, or used as resources to attain specific instructional objectives. That is, objectives should guide media utilization.

4. Media should be selected for instructional purpose, based on specific criteria which are directly related to instructional planning. These include (i) the nature of the audience in

terms of chronological age, sex, social, cultural, environmental, and economical background abilities of the learners. (ii) entry level (iii) motivation (iv) the physical abilities or disabilities of learners (v) the objectives to be achieved (whether cognitive, affective or psychomotor (vi) nature of the subject content (vii) physical qualities of the media, that is the attributes, authenticity and significance of the content (viii) cost of the media (ix) expected role of students and (x) the mod e of instructions among others.

5. Media to be used by a teacher should be declared in terms of concreteness or abstractness of experience which the media would produce. Teachers should be sensitive to the changing situation within the classroom and have alternative media to meet individual differences of learners.

6. Multimedia resources should be utilized in the content of a variety of teaching strategies. The possibility of using multimedia should be considered. This is because single media may not be adequate to achieve all the objectives outlined for a lesson.

7. Media utilization should require learners' response. Thus, when designing any media the teacher should build into the programme things that will ensure learners' participation through discussion, project, and dramatization and so on.

8. Evaluating the use of media can be done through observation individual project, and use of questionnaires. The information from the evaluation can be used to improve on media usage in subsequent lesson.

**2.17 Criterion for Selection and Use of Multimedia**

The vital criterion for the selection and use of audio-visual media material is availability of the needed materials. In other words, before the teacher decides on materials to use, he/she must be certain that they are available as well as accessible to him/her of the skills for improvisation of instructional materials. If the need arises, the materials could be improvised. The social studies teacher does not decide to use any audio-visual materials just because it has been theoretically stated that the materials are effective for teaching a particular topic, where as they are not physically available. Rather, the availability of the materials should be ascertained before the decision to use them. Availability implies, therefore, that the resources to be used must be physically provided and made accessible to both teachers and learners as and when needed. Secondly, consideration should be given to the possibility of having enough for members of the class to be equitably involved in the class activities. Furthermore, materials might require other special facilities such as recorder, socket, adaptor and electricity before they could be used. The teacher should, therefore, ascertain that everything needed for the use of materials is available and within easy reach to him and the learners before it is selected. The question forms for this criterion is are the needed instructional audio-visual materials available and accessible to the teachers and learners?

The instructional media to be selected must be relevant to the objectives as well as to the target population i.e. learners, for whom the materials are to be used. This is important because the objectives that the materials are designed to achieve should be similar to those that the teacher and the learners are trying to achieve. Being relevant to the learner means that the characteristics of the learner such as the age, level of attainment or maturation, ability, aptitude and capability, should all be borne in mind to enable the

teacher to select relevant materials for their needs. Interest and aspirations when resources are relevant to the learners they make for easy and meaningful teaching and learning activities. This criterion could be put in a question form thus: What are the educational and audio-visual instructional media objective set out to be achieved using the materials. In view of the cultural differences between communities, though the curriculum might be the same, resource materials that have been found effective in one cultural context may not be suitable and effective in another. The teacher, therefore, should endeavor to select appropriate materials from the community for teaching its learners instead of using materials because they have been used and found effective in other areas. This is especially important for teaching and learning social studies, and some other subjects. Any resources selected for use must be appropriate to the objectives as well as to the learners. The question form of the criterion is: How useful are the audio-visual resources in terms of the social studies education and instructional objectives and the characteristics of the learners?

The physical features of learning materials are very important factors for their selection and use. Physical features here means attractiveness, durability, size and clarity of the materials. Also, considered under quality are accuracy, clarity and usefulness of the illustrations, drawings and paintings and weight of the materials for ease of handling and storage. All these factors should be considered before selection is made. As a result of the present economic recession in the country, efforts should be made to conserve funds by purchasing materials that are of high quality and so will last for a long time. The question under quality is: what are the physical features of the instructional materials? In many developing countries that are experiencing economic depression, the teacher in the

selection of instructional materials should be economical. The audio-visual resources should be cheap, but this does not mean sacrificing quality for cos. But when the use of material is inevitable and the attainment of curriculum object is jeopardized without it, such a material should be purchased at all cost and properly stored. Other considerations under this criterion are the cost in terms of time and energy to be expended by the users. The question to be asked therefore is: How much would it cost in terms of money, time and energy to use the instructional materials?

### 2.18 Factors Inhibiting Utilization of Multimedia in Social Studies

Multimedia resources are useful in teaching social studies they are in most cases associated with some problems in an observational study carried out by Mezieobi, (2002) on the utilization of social studies instructional material in junior secondary school and those finding is generalizable to all social studies classrooms in Kaduna state, educational zone. The following inhibitions readily calls to mind are:

1. With regards to social studies instructional aids utilization, social studies teachers use only textbook, map, journals, mounted magazines plethora of reading resources
2. The teacher's lack of enthusiasm or commitment to effective social studies teaching
3. Some of the materials are very expensive examples; projector, films slides, computer set. This is why the materials cannot be obtained in many schools
4. Inadequate of a teacher's familiarity with a given instructional material
5. Inadequate of knowledge of the operational techniques in schools where they are available, some teachers do not know how to operate them therefore making them be useless.
6. The absence or irregular electricity to use in operating electronic devices in our schools

7. Inadequate of fund and maintenance from the government and management lead to problems facing some schools.
8. A teacher's laziness in either utilizing appropriate materials in the teaching-learning social studies
9. A teacher's ignorance or neglect of the values of instructional audio-visual in the instructional process
10. Unavailability of transport facilities to undertake educational trips or to arrange for visits to resource centre.

**2.19 Review of Related Empirical Studies**

Reviewing previous studies is essential for providing some scientific facts which serve the study (Aloraini 2012).Below are the review of some related empirical studies conducted in the area of Multimedia Resources in teaching and learning.

Yahaya (2015) conducted a study titled "Effects of Multimedia Resources on Students Academic Performances and retention in social studies in Junior Secondary Schools, Kaduna State-Nigeria. The study was quasi-experimental in design. The study used 120 JSSIII students as participants. The study answered two (2) questions and validated two (2) null hypotheses. The arithmetic mean and standard deviation were used to answer the questions raised by the study. The independent sample t-test and paired t-test were used to validate the null hypotheses at 0.05 level of significance. The study discovered significant difference between the academic performance of the experimental and the comparison groups. By implication students taught

with lecture technique supplemented by Multimedia resources out-performed their counterparts taught with lecture technique only. The study discovered that gender has no effect on the performances of the experimental group signifying that the students that were taught with lecture technique aided by multimedia resources responded well irrespective of their gender. In the light of the above, the study recommended as follows: Social studies teachers should be encouraged to use multimedia resources in their classrooms for students' optimum academic performance; the Kaduna state government through the Ministry of Education should provide all the needed funds for Junior Secondary schools to secure multimedia resources for use by teachers of Social Studies.

Similarly, Salihu, Abdullahi, Alfa & Muhammed (2015) study evaluates the effects of interactive multimedia instruction on academic performance of upper basic level students in Kaduna state-Nigeria. The study was specifically aimed at determining whether there is significant difference between the mean academic performances of upper basic level students who were taught by way of Interactive Multimedia Instruction (IMI) and also to find out whether gender affects the students' academic performances in the experimental group. In the light of the above, two corresponding questions and hypotheses were raised. The study used Upper Basic level III students as population from which sample were purposively selected. The Social Studies Interactive Multimedia Package (SOSIMP) and Social Studies Conventional Lecture Method (SOSCOLM) were the instructional packages used. The Social Studies Achievement Test (SSAT) was the instrument for data collection. The mean, standard deviation and t-test independent sample were the data analysis tools. The study discovered that; upper Basic Level students who were taught by way of Interactive Multimedia Instruction (IMI) outperformed their counterparts who were taught through Conventional Lecture Method (CLM);the Interactive Multimedia Instruction (IMI) as an instructional strategy works well for both male and female students at

Upper Basic Level as their academic performances improves significantly. In view of the above findings the study made some recommendations which include the need for Kaduna state government to build and equipped computer laboratories in each secondary school in the state.

Moreover, Bostan (2015) conducted a study titled "Focus-group Research on Modern Techniques and Multimedia Tools Implementation in Teaching Practice." The study was conducted in Romania. The work studies the acceptance degree of physics teachers in using of computer and multimedia resources in didactical process, both in classroom and in laboratory school. The aim of the research was to prove the implementation of new technologies in teaching/ learning physics as didactical tools. The research discovered that although digital technologies are fully integrated into the way people interact, at work, when they are engaged in business and doing trade, ICT are not yet fully exploited into the education system and training in Romania. The study shows that the vast majority of teachers (87%) use digital resources in the didactic process. Of these, 70% use modern resources during the assessment process of students through the elaboration of projects, essays, portfolios. Most teachers use information and communication technology (ICT) primarily to prepare teaching materials - posters, educational movies or PowerPoint presentations, not to work with students during classes as computer modeling, experimental simulations in real time, collection/ analysis of experimental data and plotting (17%). The vast majority of teachers (78%) do not use the interactive whiteboard in teaching. Among those who use it, a large percentage respectively half (11%) rarely use it, but does not specify how often. Only a small proportion of respondents (11%) said that they used as didactical mean.

It was concluded that the interactive whiteboard is used in the educational process at a rate of 89% due to the small number of existing interactive whiteboards in the schools, on the one hand, and on the other hand, teachers do not know how to use it. Using the computer and

multimedia tools in teaching is considered beneficial by 56% of teachers that using it effective (87%) of the participants in this study. A significant percentage (44%) points out that an excessive use of the computer may induce students a passive attitude.

From the research result that implementation of the AEL system in schools does not have expected performance because it is used in a proportion of 11%. The implications of inclusion the computer in physics classes are considered positive, especially in data processing in laboratory work, plotting or observing physical phenomena which cannot be reproduced in the laboratory school. 90% of focus group participants have recognized that they give as homework realization of projects through the computer. 22% of teachers surveyed are skeptical regarding the evolution of formal learning via computer. Their skepticism was justified by the huge costs that are imposed, the development of digital resources for teachers and students, tablets for students and teachers. The majority of 78% believe that IT resources will be increasingly more integrated into the educational process. It speaks even a reversed learned-Flipped classroom in which the student scroll the learned material at home (manual in digital format), the teacher's role being to provide digital content for learning at home/ in class, and as tutor in the learning process and the time required consolidation and perform experimental work increases considerably.

The conclusions drawn in Bostan (2015) study are: teachers are eager to improve their digital skills; there is availability from some talented physics teachers, to programming the didactical experiments; there are the conservative teachers who do not consider the progress as a beneficial intervention in school. Unless policies are changed, the introduction of computers, of interactive whiteboard, of the tablet in school becomes a necessity. Teachers will need to adapt to new technological developments so that the school to be contemporary with modern times in

which we live. The possibilities of processing, recording, modeling, searching and retrieval of information by computer induce knowledge and skills to a higher level for students. Measures are required in the educational environment as follows: support for teachers to acquire digital skills and new and interactive didactical methods; support the development and availability of Open Educational Resources (OER), and MOOCs; connecting classrooms and the use of digital devices and digital content, including OER; mobilize the educational actors and of civil society to change the role of digital technologies in educational institutions.

The Bostan (2015) study and the current work are survey. Questionnaire is the method for data collection and teachers are the respondents in the two studies. The current study examines the availability; organization and utilization of multimedia resources for teaching social studies in Colleges of Education in Nigeria while that of Bostan (2015) studies the acceptance of Multimedia Resources among Physics teachers in Romania.

In a related development, Gertner (2011) conducted a study titled "The Effects of Multimedia Technology on Learning." The goal of the study was to assess the effects of e-text, specifically on the iPad, on reading comprehension and transfer learning. Sixty nine students enrolled in an Introductory Psychology course read from textbooks and e-text and completed assessment measures in comprehension and transfer learning. Overall, the findings of the study provided support for the notion that there is a positive relationship between learning and reading on an e-text transfer scores when compared to traditional text. Additionally, scores for reading comprehension were similar between both groups.

The study by Gertner (2011) was quasi-experimental research design using students as participants while the current study is cross-sectional survey and teachers of social studies from colleges of education in Nigeria are the target respondents. The current study examines the

availability, organization and utilization of Multimedia Resources in teaching Social studies in Colleges of Education while that of Gertner (2011) ascertained the effects of multimedia technology on learning.

Reis (2007) conducted a study on Video-based multimedia designs: A research study testing learning effectiveness. This paper summarizes research conducted on three computer-based video models' effectiveness for learning based on memory and comprehension. In the quantitative study, a two-minute video presentation was created and played back in three different types of media players, for a sample of eighty-seven College freshman. The three players evaluated include a standard QuickTime video/audio player, a QuickTime player with embedded triggers that launched HTML-based study guide pages, and a Macromedia Flash-based video/audio player with a text field, with user activated links to the study guides as well as other interactive on-line resources. An assumption guiding the study was that the enhanced designs presenting different types of related information would reinforce the material and produce better comprehension and retention. However, findings indicate that the standard video player was the most effective overall, which suggests that media designs able to control the focus of a learner's attention to one specific stream of information, a *single-stream focused approach*, may be the most effective way to present media-based content.

The Reis (2007) study was quasi-experimental which examined the effectiveness of multimedia on learning outcome while the present study is cross-sectional survey which centres on the availability, organization and utilization of multimedia resources for teaching social studies in Colleges of Education in Nigeria. The current research uses Teachers in Colleges of Education as sample while that of Reis (2007) used freshman college students as sample.

In another development, Sivakumaran, Garcia, Davis, Jones, Choi & Dawson (2012) study focused onStudents Perceptions of Multimedia Technology Integrated in Classroom Learning. The study surveyed students entering seventh, eighth, and ninth grade regarding their current use of any technological tools in their current learning environment, and their perceptions as to the benefits of using it on a more regular basis. Results found that, although most were not utilizing technology to its capacity in their classrooms, students perceived that incorporating technology on a higher level in their classrooms would make them more engaged and excited to learn.

Tennent (2003) conducted a study titled “Multimedia: Perceptions and Use in Pre-service Teacher Education”. The research reported describes the experiences and perceptions of computer-based technologies from the perspective of academic staff and graduates from two pre-service Teacher Education Courses in a Queensland university. The research was conducted in two phases using a repeated cross-sectional longitudinal design. In Phase 1 of the research conducted in 1997, and in Phase 2 in 2002, questionnaires were used to gather data. In Phase 1 of the research, participants comprised 43 academic Staff members involved in two pre-service Teacher Education Courses and 72 first or second year graduate teachers from these courses. Items in the academic staff and graduate teacher questionnaires elicited information on a range of issues related to the technologies including knowledge and confidence levels, acquisition of knowledge, current and future usage in teaching, advantages and disadvantages of teaching with the technologies, the importance of the technologies to higher and pre-service education and the adequacy of pre-service Teacher Education to prepare new teachers to use technologies. Graduate teachers were also questioned about barriers to their classroom use of technologies. Further questions for academic staff investigated the existence of factors that facilitate usage of technologies and the degree to which the presence or absence of these

factors constituted barriers or incentives to technology use. A number of questions also explored attitudes surrounding the valuing of teaching, research and publishing. Results from the first phase of research revealed that both academic staff and new teachers made little use of technologies in their teaching.

The most salient barriers to academic staff technology use included lack of technical advice and support, time, and lack of evidence of improved student learning and interest. There was also a widely held perception among academic staff that teaching was not valued by their University and that, in particular, innovation in teaching deserved greater recognition. For graduate teachers, barriers to technology use included lack of computers and resources, lack of school funding, and lack of knowledge and training. In Phase 2 of the research, participants comprised 40 academic staff members and 123 graduate teachers from the same two pre-service Teacher Education Courses. Participants were again questioned about knowledge and confidence levels, acquisition of knowledge, current and future usage in teaching, and the adequacy of pre-service Teacher Education to prepare new teachers to use technologies.

In light of new research and building on findings from the first phase of data collection, several new questions were added. These questions related primarily to the nature and availability of training and how pre-service teacher preparation in technology use could be improved. Results from the second phase of research indicated that, among academic staff and graduate teachers, there had been considerable increase in knowledge and confidence levels in relation to the technologies, along with increased levels of usage. Both groups were also significantly more likely than their earlier counterparts to report that pre-service teachers were adequately or well prepared in the use of technologies. For graduate teachers, lack of equipment and resources were ongoing barriers to technology use. Training in technology use appeared to be less of an

issue for graduate teachers than academic staff with most reporting access to, and satisfaction with, in-service training opportunities. Encouraging too, was the finding that these graduate teachers were significantly more likely than their 1997 counterparts to attribute their knowledge of the technologies to pre-service Teacher Education. While positive change in technology use was evident across this period, continued efforts to support and integrate technology in pre-service Teacher Education remains important, as does support for the innovative use of technology to promote learning in schools.

The study carried out by Tennent (2003) and the current study centred on the use of Multimedia resources in Teacher Training Institutes and teachers form part of the respondents. The current is cross-sectional survey with questionnaire as data collection instrument while that of Tennent (2003) was longitudinal cross-sectional survey. The study by Tennent (2003) examined the perceptions and use of multimedia resources while the current study centres on the availability, organization and utilization of Multimedia Resources in Colleges of Education in Nigeria. In addition, the current study centres on the availability, organization and utilization of multimedia resources in teaching social studies while that of Tennent (2003) was not specific but rather looked at the wider view of the Perception and Use of Multimedia Resources.

Algerioy (1999) carried out a study on the impact of using multimedia on the academic achievement of the first grade secondary school students in mathematics in Riyadh by using the experimental method with the study sample which comprises 62 students. They were divided into two groups where the experimental group studied on its own using multimedia while the control group studied using the traditional method. The study found out no statistically-significant differences, between the average achievement of the experimental group students and those belonging to the control group, in remembrance, understanding and application level.

Ila Mariss (1980) conducted a study entitled as ‘‘Comparison of the student’s success & change of attitude as a result of two different educational cases’’. The study aims at comparing the efficiency of the teacher’s traditional explanation and the multimedia method in the students’ academic achievement and their attitudes. The researcher used the experimental method and the study was conducted on a sample comprising 80 students from the ninth grade. The sample was divided into two groups: one was control and the other was experimental. The researcher used (diagrams, tapes & programmed films) achievement tests designed by him. The most important results are: the academic achievement of the experimental group students rose as a result of using the multimedia group as there were statistically-significant differences of the average achievement in favour of the experimental group students who used the multimedia group.

Sterling and Gray (1991) conducted a study on the impact of the computer stimulation programs on the students’ tendencies and their response to the statistics course. The study sample comprised 40 students who studied using the stimulation program on their own, which is called the experimental group, and other 36 students who studied using the traditional method depending on the teacher, which is called the control group. After analyzing the study results, the two researchers found out that there are statistically-significant differences in the cognitive achievement in favor of the experimental group.

Similarly, Losike-Sedimo (2006) carried out a study titled “Bringing Teaching to Life: Using Multimedia to Engage and Empower Students”. The paper presents the results of a study on the impact of simulations and virtual reality on university students’ achievement and their attitude. These are then discussed in the context of specific media characteristics. The researcher used a

mixed method design and examined hypotheses for effect as well as analysed qualitative data for stated assumptions. The underlying theory for the study is that simulations and virtual reality may bring teaching to life by creating an imaginary life experiential learning.

Characteristically, these types of media do not only have graphics, sound, video, text, and special effects that enhance the overall appeal of teaching, they also allow students to vicariously experience real life situations. Students can experience past events, current trends, and future possibilities and also interact with each other. Through interactive participation by the students, multimedia software permitted logical thinking, problem solving, hypothesis testing, inference and many activities of higher order thinking. Computer simulations presented potential to create complex and challenging student activities. Conversely, virtual reality has the potential to transport the minds of students into a given set of experiences. Students felt that they were actually in the experience they were watching on the screen. Virtual reality experience resulted in learning that connects the student with their emotions, cognitive skills, and physical sensations. Such experience promoted memory of content learned.

This study sought to investigate the availability, organization and utilization of multimedia in teaching social studies in colleges of education in Nigeria. Building on theory, a virtual psychology lab was created to train students to identify human development problems and learn strategies for problem solving. Students were later examined for improved learning, acquisition of skills, knowledge and attitude. The results show that there are numerous benefits for engaging multimedia in teaching. The study concludes that there is a need for changing teaching methods to empower students by embracing technology.

The study by Losike-Sedimo (2006) centred on examining the effectiveness of multimedia resources on learning outcome while the current study centres on the availability, organization

and utilization of multimedia resources for teaching social studies in Colleges of Education in Nigeria. The current study and that of Losike-Sedimo (2006) is cross-sectional survey. The questionnaire is the instrument for data collection for the current study while Motivation questionnaire and interview guide, achievement tests and attitude survey were used by Losike-Sedimo (2006) The teachers of social studies in colleges of education will be used in the current study while that of Losike-Sedimo (2006) used students of Higher Institution of learning.

Watkins (1999) carried out a study which aimed at finding out the efficiency of teaching by using the multimedia software stored on a CD in the academic achievement of a sample of students from the University of Arizona (49 students) and their attitudes toward sciences. The study used the semi-experimental method as it divided the study sample haphazardly into two groups: one is experimental whose students studied using educational software while the other is control whose students studied some subjects of sciences using the traditional method. An achievement test is applied in this study in addition to an attitude scale. The results showed the excelling of the experimental group over the control group which studied using the traditional method in an attempt to reach an academic achievement. They also showed no statistically-significant differences in attitudes between the two groups.

In a related development, Muhammad (2011) conducted a study titled “Effects of the availability and the use of instructional materials on academic performance of students in Punjab-Pakistan”. The study investigates the effect of the availability and the use of instructional material on academic performance of students in Punjab (Pakistan). The population of the study comprised all secondary and higher secondary schools, secondary teachers and secondary students in Punjab. Overall, a total of 288 schools, then 20 students and 10 teachers from each school were randomly selected as the sample of the study. The study used the value added approach. School

Profile Proforma, a questionnaire for teachers and Result Sheet were the instruments of the study. Pearson correlation was used to find out the relationship (association) and Stepwise Regression analysis with linear function was used to find out the differential impact (causal-relationship). The study identified that there is a great deficiency in the availability and the used of instructional material. The study concluded that the less availability, misallocation and the deficiency in the use of instructional material lead to the wastage of resources, the less effectiveness of instructional material and lower academic performance. The policy implications of the study are that instructional material can have an enormous effect if is properly allocated, equalized per student and efficiently used with the standard quantity and quality.

Moreover, reviewing research findings that could guide future educational uses of multimedia/hypermedia, Roblyer (1999) found that multimedia's benefits seem to center on its ability to offer students multiple channels through which to process information. However, researchers are cautious about recommending multimedia to support specific kinds of learning. Swan and Meskill (1996) examined how effectively current hypermedia products support the teaching and acquisition of critical thinking skills in reading and language. They reviewed hypermedia products as to how well they made possible response-based approaches to teaching and learning literature, that is, instructional activities that "place student-generated questions at the center of learning ... (and encourage) a problem-finding as well as a problem solving approach to critical thinking" (p. 168). They evaluated 45 hypermedia literature programs using criteria in three areas: technical items, response-based concerns, and classroom issues.

The majority of the 45 products used a CD-ROM format, but 10 used a combination of CD-ROM and videodisc, and four used computer software. They found that most products were

technically sound and linked well with classroom topics, but few were designed to promote the response-based methods that promote critical thinking. “Programs designed for elementary students . . . equated literature education with reading instruction; programs designed for high school . . . generally adopted a traditional text-centered approach” (p. 187). These findings indicate that teachers who want to use multimedia/hypermedia products specifically to promote higher level skills must select products judiciously and warily. This study examines the availability, organization and utilization of multimedia resources for teaching Social studies in Colleges of Education in Nigeria.

In another review of the impact of hypermedia on learner comprehension and learner control, Dillon and Gabbard (1998) echo the caution voiced by Swan and Meskill. They conclude that:

1. Hypermedia’s primary advantages accrue to students doing rapid searches through lengthy or multiple information resources. For other purposes, hypermedia and non hypermedia resources seem equally useful.
2. Increased learner control is more useful to higher ability students; lower ability students experience the greatest difficulty with hypermedia.
3. Learner style helps determine whether or not certain hypermedia features are effective in various learning situations. Passive learners may profit more from the cueing offered by hypermedia, while more capable learners who are more willing to explore may be capable of exploiting other hypermedia features.

The current study attempts to investigate whether there are multimedia resources for teaching social studies; how they are organised if they are available; and how these resources are utilized for teaching Social studies in Colleges of Education in Nigeria.

Ibrahim, (2011), conducted a study titled “An Investigation of teaching materials used in social studies lesson.” The purpose of the study was to analyze the teaching materials employed during social studies lessons on the basis of certain variables. Specifically, the researcher tried to find out whether teachers’ gender, service length, having a personal computer, receiving in-service training regarding the use of teaching materials, having an interest on using technological devices and sufficiency of the teaching materials in schools affect the usage of printed materials, audio-visual materials or experience-giving methods (e.g. field trips, a visit to an institution) in social studies lessons. The data were collected from 160 teachers (N=87, female: N=73, male) who worked in Istanbul and Sakarya during 2008-2009 spring semester. A scale was developed and applied by the researcher on the participating teachers to score and measure the usage of teaching materials in social studies lessons. The results of the study showed statistically significant differences on the usage of printed materials and experience-giving methods based on the gender of the teachers and in-service training, in favour of both female teachers and teachers who have received an in-service training.

Moreover, statistically, significant differences were also observed on the usage of print materials, experience-giving methods and the total score due to the service length of the teachers. The teachers, who have been working for 16 years or more, had significantly higher scores on the aforementioned variables. In addition, it was found that if schools had sufficient materials/equipment, the teachers tended to use the teaching materials more in their lessons. No correlation was found between service length and the usage of audio-visual materials by teachers, as well as between having a personal computer and usage of teaching materials.

Asan (2002) examined that the computer attitudes of 265 pre-service teachers majoring in science education and social science education. The findings of the study indicated that pre-

service teachers had positive attitudes towards computers and felt quite comfortable with computers. However, although it seems that there are positive beliefs about the computer and the Internet integration among the Turkish teachers, it is important to know their computer and the Internet using capabilities as well as the administrators'.

However, Adedapo, Salawu and Afolabi (2011) conducted a study titled 'Effects of Video and Audio Taped Instruction on Cognitive Learning Outcomes in Economics .This study assessed the effectiveness of video and audio taped instructional strategies on cognitive learning outcomes in Economics. The sample used for this quasi –experimental study consisted of 364 Senior Secondary Two (SSII) students drawn from secondary schools in Oyo Metropolis. Two hypotheses were postulated andtested using Analysis of Covariance (ANCOVA), Turkey/Kramer post hoc test and mean. The results of the study showed that there was significant difference in the students' cognitive achievement and interest in Economics which were mostly enhanced by the video-taped strategy, followed by audio taped strategy and minimally by the conventional strategy. Recommendations were made that the video instructional strategy should be given more emphasis during teaching and learning of Economics and be integrated into other related subjects in secondary schools.

Maruff, Gbolagede, Ojebisi, and Isola, (2011), conducted a study to examine the effect of using standardized and improvised instructional materials on Academic Achievement of Secondary School Physics Students in Oyo State, Nigeria. The research design adopted was quasi-experimental of the pretest – post test non-randomized control group. Purposive sampling was used to obtain a sample of three co-educational secondary schools. Each school provided one S.S. III class for the study. Two instruments were used in the study, the Physics Achievement Test (PAT) to measure students' achievement and Teachers Instructional Guide (TIG) to train the

teachers in the experimental groups. The instrument was pilot tested to ascertain reliability. The reliability coefficient was 0.76. Three hypotheses were formulated and tested at 0.05 level of significance. Data were analysed using ANOVA and ANCOVA. Findings revealed that there is a significant difference in the achievement of students taught using standard instructional materials, those taught with improvised instructional material and those in the conventional instruction.

Thus, the students taught with improvised instructional materials obtained the highest achievement score at post test (F=74.94), followed by those with standard instructional materials (F=63.07), while the control group scored the lowest (F=39.89). Also, there was no significant effect of gender on students' achievement in Physics although, females did better than males. Finally, there was no significant interaction effect of treatment and gender on student achievement in Physics. The researchers conclude that the utilization of improvised instructional materials promote and enhance effective teaching-learning process, thus, Physics teachers should be encouraged to use them in secondary education programme.

In a related development Akerele and Ajayi (2012) conducted a study titled "Effect of Video on the Teaching of Library Studies Among Undergraduate in Adeyemi College of Education, Ondo,State." The objective of the study was to determine the effect of video on teaching undergraduate a course (Library Instruction Programme, LIB001) in a College of Education. The study raised two (2) research questions and three null hypotheses. The study was survey and quasi-experiment. Therefore, it employed pre-test post-test control group experimental design using 100 students for the study (i.e. 50 each for experimental and control groups). The instrument used by the study to gather data was titled "Effect of Video on Teaching Scale (EVTS). The survey aspect consisted of 25 items on a four point LIKERT-types scale. The factor

Analytic method was used to validate the questioner as was found to be factually pure while cronbach value of 0.72 was established. The data of the study were analysed using mean, standard deviation and Analysis of covariance (ANCOVA).

The study conducted that when video in teaching, it enhance learners' positive attitude toward the course. Also it affects their performance positively.

The study recommends that teaching and learning activities be supplemented with media such as video among others.

Okobia (2011) conducted a study titled Availability and Teachers' Use of Instructional Materials and Resources in the Implementation of Social Studies in Junior Secondary Schools in Edo State, Nigeria. The study was designed to assess the availability and teachers' use of instructional materials and resources in the implementation of junior secondary school social studies curriculum in Edo state. 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 is therefore recommended that instructional materials and resources be made available for the teaching of Social Studies.

Yahaya (2015) conducted a study titled "Effects of Multimedia Resources on Students Academic Performances and retention in social studies in Junior Secondary Schools, Kaduna State-Nigeria. The study was quasi-experimental in design. The study used 120 JSSIII students as participants.

The study answered two (2) questions and validated two (2) null hypotheses. The arithmetic mean and standard deviation were used to answer the questions raised by the study. The independent sample t-test and paired t-test were used to validate the null hypotheses at 0.05 level of significance. The study discovered significant difference between the academic performance of the experimental and the comparison groups. By implication students taught with lecture technique supplemented by Multimedia resources out-performed their counterparts taught with lecture technique only. The study discovered that gender has no effect on the performances of the experimental group signifying that the students that were taught with lecture technique aided by multimedia resources responded well irrespective of their gender. In the light of the above, the study recommended as follows: Social studies teachers should be encouraged to use multimedia resources in their classrooms for students' optimum academic performance; the Kaduna state government through the Ministry of Education should provide all the needed funds for Junior Secondary schools to secure multimedia resources for use by teachers of Social Studies.

Similarly, Salihu, Abdullahi, Alfa & Muhammed (2015) study evaluates the effects of interactive multimedia instruction on academic performance of upper basic level students in Kaduna state-Nigeria. The study was specifically aimed at determining whether there is significant difference between the mean academic performances of upper basic level students who were taught by way of Interactive Multimedia Instruction (IMI) and also to find out whether gender affects the students' academic performances in the experimental group. In the light of the above, two corresponding questions and hypotheses were raised. The study used Upper Basic level III students as population from which sample were purposively selected. The Social Studies Interactive Multimedia Package (SOSIMP) and Social Studies Conventional Lecture Method (SOSCOLM) were the instructional packages used. The Social Studies Achievement Test (SSAT)

was the instrument for data collection. The mean, standard deviation and t-test independent sample were the data analysis tools. The study discovered that; upper Basic Level students who were taught by way of Interactive Multimedia Instruction (IMI) outperformed their counterparts who were taught through Conventional Lecture Method (CLM);the Interactive Multimedia Instruction (IMI) as an instructional strategy works well for both male and female students at Upper Basic Level as their academic performances improves significantly. In view of the above findings the study made some recommendations which include the need for Kaduna state government to build and equipped computer laboratories in each secondary school in the state.

Oshinaike & Adekunmisi (2011) in a study examined the Use of Multimedia for Teaching in Nigerian University System: A Case Study of University of Ibadan. The study discovered the following:

1. Majority of the respondents do not have access to the multimedia resources on campus probably this might be responsible for use of these materials at their homes and cybercafés.
2. The multimedia collection in these faculties is being viewed by respondents as being grossly inadequate.
3. 28 (35.00%) of the respondents had access to the multimedia resources available on the campus while the remaining 52 (65.00%) do not have access.
4. It was also found that majority of the respondents did not make use of the multimedia resources in practical teaching but rather in forming lecture notes for teaching their students, paper presentations, research and publication activities/outlets.
5. It was also found that the mostly used multimedia facilities were being used for research and publication activities rather than for teaching their students.

6. The study further revealed that the Internet and its facilities as well as the Computer and CD-ROMs were the mostly used of the multimedia resources while the television and transparencies were the least being used.
7. Lack of supportive infrastructures; lack of time to spend on technology, inadequate and or lack of training, inadequate fund on the part of individual lecturers and high cost of technology were the major constraint factor limiting the use of multimedia for real – life experience in teaching their students

**Summary**

This chapter first provided a brief overview of the multimedia resources, especially in the discipline of Social Studies. Effective utilization of appropriate multimedia is highly essential to improve teaching and learning of social studies in secondary schools. Improvement and better academic achievement can also be guaranteed through the use of multimedia resources. And if the standard of education has to be raised, the uses of multimedia should be used for the teaching and learning of socials studies. It is therefore that the use of multimedia must be given adequate priority in our school system. Multimedia resources are important in education system are those devices which are used in classrooms to encourage teaching learning process and make it easier and interesting. Multimedia resources are the best tool for making teaching effective and the best dissemination of knowledge .So there is no doubt that technical devices have greater impact and dynamic informative system. This study designed to evaluate the availability, organization and utilization of multimedia resources in teaching social studies in colleges of education in Nigeria. The review acquaints the researcher with necessary and useful methodological supports which will assist in enhancing the current study. The gaps left unfilled by other studies have been identified which will be addressed by this study.

## CHAPTER THREE
## RESEARCH METHODOLOGY

### 3.1 Introduction

This chapter discusses the procedure used in carrying out the research. The chapter discusses the following sub-headings:

- Research Design
- Population of the Study
- Sample and Sampling Procedure
- Instrumentation
- Validity of the Instrument
- Reliability of Instrument,
- Data Collection Procedure and
- Statistical Analysis Procedure

### 3.2 Research Design

This study used survey research design. The purpose of survey research design is for researchers to describe the attitudes, opinion, behaviours or characteristics of the population based on the data collected from a sample or a population, (Muhammad, 2013). It has the following advantages: it describes the characteristics of a population, it describes differences among two

or more population, it finds correlation, it makes predictions, it has low refusal rate and it is efficient and easy.

This study specifically used cross-sectional type of survey research design. Cross-sectional surveys are studies in which samples are selected from a defined population and contacted at a single point in time. It is on the basis of the information obtained from the subjects at that point in time that decisions are then taken. According to Hulley, Cummings and Newman (2007) “in a cross-sectional study all the measurements are made at about the same time, with no follow-up period. Cross-sectional survey is where a set of information is collected for a sample at one point in time. Data may be collected from a sample of the population or from the entire population or community, (Guyette, 1983). It is usually employed by collecting data and describing in systematic manner the characteristic features or facts about a given population from a few people or items considered to be representative of the entire group, Akuezuilo & Agu in (Salihu and Adamu 2016). The design corresponded with the motives of the study which seeks to evaluate the Availability, Organization and Utilization of Multimedia Resources for Teaching Social Studies in Colleges of Education in North-Central Zone, Nigeria.

**3.3 Population of the Study**

The population for this study consists of Social Studies Lecturers of colleges of education in North-Central Geo-political Zone-Nigeria. There are a total of 127 Lecturers spread across 11 public colleges of education in North-Central Zone of Nigeria. Table 1 shows the population distribution of Lecturers in relation to gender and the College ownership.

**Table 1: Population Distribution of Social Studies Lecturers in North-Central Zone according to Institutions**

| S/n | Institutions | Population | | Total | Ownership |
|---|---|---|---|---|---|
| | | Male | Female | | |
| 1 | Benue State College of Education, Katsina-Ala | 12 | 03 | 15 | State |
| 2 | Federal College of Education, Okene, Kogi State | 07 | 01 | 08 | Federal |
| 3 | Kogi State College of Education, Ankpa | 07 | 01 | 08 | State |
| 4 | Niger State College of Education, Minna | 11 | 05 | 16 | State |
| 5 | Nassarawa State College of Education, Akwanga | 05 | 04 | 09 | State |
| 6 | Plateau State College of Education, Gindiri | 04 | 02 | 06 | State |
| 7 | Federal College of Education, Pankshin, Plateau State | 13 | 05 | 18 | Federal |
| 8 | Federal Capital Territory College of Education, Zuba-Abuja | 06 | 03 | 09 | Federal |
| 9 | Kwara State College of Education, Ilorin | 06 | 02 | 08 | State |
| 10 | Federal College of Education, Kontagora, Niger State | 19 | 02 | 21 | Federal |
| 11 | Kwara State College of Education, Oro | 09 | - | 09 | State |
| | Total | 99 | 28 | 127 | |

**Source**: HODs Social Studies 2016

### 3.4 Sample and Sampling Procedure

The study used census sampling in data collection. This is due to the fact that the population of the study is easily accessible and manageable (127) the entire population is covered. This is aimed at adding credibility to the study. According to Alfa (2016) and Abubakar, Salihu & Usman (2016) it is possible to get deep insights into the phenomenon you are interested in when total population is used. With such wide coverage of the population of interest, there is also a reduced risk of missing potential insights from members that are not included. According to Alfa (2016) a total population could be used for the following reasons; when the population size is relatively small and/or the population shares an uncommon characteristic(s). In this respect, the population of the study is considered manageable by the researcher and for the need to balance the uncommon features of the respondents.

### 3.5 Instrumentation

The study used structured questionnaire titled "Availability, Organization and Utilization of Multimedia Resources Questionnaire (AOUMREQ). Questionnaire according to Shehu (2015) and Muhammad (2014) is the statement which the respondents have to react in writing so as to find out their feelings, and opinion on the designed items in the questionnaire. Polit and Hungler (1997:466) define questionnaire as "a method of gathering information from respondents about attitudes, knowledge, beliefs and feelings". Questionnaire as data collection instrument has an edge over other methods of data gathering in the opinion of Brink and Wood (1998:293-298), Shehu (2015) and Muhammad (2014) courtesy of the following aspects characteristic features:

1. Each participant enters his/her responses on the questionnaire, saving the researcher's time, compared to the time required to conduct personal interviews;
2. It is less expensive than conducting personal interviews;
3. Respondents feel that they remain anonymous and can express themselves in their own words without fear of identification;
4. Data on a broad range of topics may be collected within a limited period;
5. The format is standard for all subjects and is independent of the interviewer's mood.

The instrument is designed into three sections based on four point modified Likert scales; section 'A' centres on the availability of multimedia resources for teaching Social Studies in colleges of education which has the following scales (Fully Available=FA, Partially Available= PA, Unavailable=UA & Uncertain=UC) while section 'B' deals with level of organization of these resources with the following scales (Effectively Organised=EO, Fairly Organised =FO, Poorly Organised=PO & Unorganised=UO). Section 'C' centres on the utilization level of multimedia

resources and has these scales (Effectively Utilized=EU, Fairly Utilized=FU, Poorly Utilized=PU & Not Utilized=NU).

### 3.5.1 Validity of the Instrument

Validity has to do with whether the instrument is measuring what it is intended to measure. The definition of instrument validity is the extent to which an instrument measures what it is supposed to. Validity was established by correlating the scores with a similar instrument. Also, expert review establishes validity (dissertation-statistics.com, 2016). The instrument for this study (questionnaire) was vetted by research supervisors and other experts in Computer Science and English Language and Literary Studies Department from Ahmadu Bello University, and Federal College of Education, Zaria. The initial draft of the questionnaire, objectives of the study, research questions and hypotheses are given to experts for vetting. The instrument was assessed in terms of content coverage, the language used, arrangement of questions and clarity. However, useful input such as reframing some of the items, deleting irrelevant ones and simplifying some ambiguous ones, comments and observations form the basis of necessary modification of the instrument.

### 3.5.2 Reliability of the Instrument

The consistency of the instrument was ascertained through pilot study. In order to determine reliability co-efficient of the instrument for this study, Cronbach alpha method for determining reliability coefficient is used. Coefficient alpha (also known as “Cronbach’s alpha”) is perhaps the most widely used reliability coefficient. It estimates test-score reliability from a single test administration using information from the relationship among test items. The internal consistency of all the three-sections of the questionnaire is determined respectively through pilot study. This was conducted at Federal College of Education, Zaria using 30 Social Studies Lecturers. Hence, 0.74, 0.758 and 0.745 were realised for sections B, C and D respectively. The

study used the assertion of Danjuma and Muhammad (2011) which stress that an instrument is reliable if its reliability co-efficient lies between 0.64 and 1. In the light of this, the research instrument is reliable for the main work.

### 3.6 Data Collection Procedure

The researcher received letter of introduction from the Department of Arts and Social Science Education, Ahmadu Bello University, Zaria. This enabled him to obtain the data needed for the study from the Colleges of Education offering Social Studies in the North-central Zone of Nigeria. This is aimed at introducing the researcher and the study motives and also as a means of soliciting for official permission and co-operation to utilize Lecturers for the study.

The researcher and the research assistants who are Social Studies experts administered the questionnaires to the Social Studies Lecturers in the colleges. The processes of data collection are done simultaneously to avoid losses.

### 3.7 Statistical Analysis Procedure

The study used percentage and frequency counts to present the basic personal information of the respondents. The Arithmetic Mean and Standard Deviation were used in answering the questions raised by the study. In addition, the study used independent samples t-test to validate the null hypotheses. This is because all the null hypotheses possess two variables – male and female and Federal and States owned Colleges of Education Social Studies lecturers' respectively.

# CHAPTER FOUR

# DATA PRESENTATION, ANALYSES AND DISCUSSIONS

## 4.1 Introduction

This study investigated the availability, organization and utilization of multimedia resources for teaching Social Studies in Colleges of Education in North-Central Zone, Nigeria. A total of 127 questionnaires were used in the study out of which 121 were retrieved. A total of 75 items were

used. They are grouped into 3 equal groups of 25 items per section. The Statistical package called International Business Machines (IBM) version 23 was used in the analysis of the data. The descriptive statistics involving frequency and percentages were used to present the bio data variables of the respondents based on gender and institutional ownership.

The second part answered the research questions using item means, standard deviations and frequency and comparing the overall cumulative mean scores with the standard deviations in order to determine the overall answers to each question, the cumulative mean of the 25 items for each section was computed and compared with a decision mean of 2.50 which was computed based on the modified 4-Likert scale using (4+3+2+1)/4= 2.50. The third part test the six null hypotheses by means of the independent samples t-test statistics to determine the differences among the respondents in each of the availability, organization and utilization of multimedia resources on the basis of either the respondents gender status or the ownership of the colleges. All hypotheses were tested at 0.05 level of significance. The conclusion was in line with the study's findings. Recommendations were also provided in line with the research findings.

### 4.2 Analysis of Respondents' Personal Information

Presented in tables 2 and 3 are respondents (Lecturers) personal information. The basic personal information of the respondents is based on gender and institution's ownership. Table 2 presents the frequency distribution of respondents according to gender while table 3 centres on the distribution of respondents on the basis of institutional ownership.

**Table 2: Frequency Distribution of Respondents by Gender**

| Gender | Frequency | Percent |
|---|---|---|
| Male | 95 | 78.5 |
| Female | 26 | 21.5 |

| | | |
|---|---|---|
| Total | 121 | 100.0 |

Table 2 shows the frequency distribution of lecturers on the basis of gender. A total of 95 lecturers representing 78.5% are male while 26 respondents representing 21.5% are female. This indicated that male respondents outnumbered their female counterparts.

**Table 3: Frequency Distribution of Respondents by College Ownership Status**

| Ownership Status | Frequency | Percent |
|---|---|---|
| Federal | 55 | 45.5 |
| State | 66 | 54.5 |
| Total | 121 | 100.0 |

Table 3 shows the frequency distribution of lecturers on the basis of college ownership status. The result shows that 55 Lecturers representing 45.5% are from federal colleges of education while 66 Lecturers representing 54.5% are from States owned Colleges of Education.

### 4.3 Cumulative Mean Opinions of Respondents

Tables 4, 5 and 6 present the cumulative mean responses of respondents (Lecturers) on the availability, organization and utilization of multimedia resources for effective teaching of Social Studies in colleges of education in North-Central Nigeria. The cumulative mean opinions as presented in the tables 4, 5 and 6 are regardless of the Lecturers' gender and institutional affiliations. The established decision mean adopted is 2.50 which are compared against the cumulative mean responses for every table.

***Table 4: Cumulative Mean Responses on the Availability of Multimedia Resources for Effective Teaching of Social Studies in Colleges of Education in North-Central Zone-Nigeria***

| S/No | Items | Response Categories | | | | Mean |
|---|---|---|---|---|---|---|
| | | FA | PA | UC | NA | |
| 1 | Visual Presenter/Document Cameras | 36 | 15 | 38 | 32 | 2.45 |
| 2 | Digital Photos Maps and Schematic Drawings | 45 | 68 | 5 | 53 | 2.79 |
| 3 | Videos/Videodiscs | 40 | 29 | 32 | 20 | 2.74 |
| 4 | Hypermedia Databases | 13 | 42 | 26 | 40 | 2.23 |
| 5 | Printed Photos Maps and Schematic Drawing | 4 | 4 | 13 | 100 | 1.27 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 6 | Audio and Video Digitizers | 5 | 4 | 101 | 11 | 2.02 |
| 7 | The World Wide Web | 9 | 3 | 26 | 83 | 1.49 |
| 8 | Digital Still or Video Camera | 4 | 17 | 21 | 79 | 1.55 |
| 9 | Digital Video and Still Image Cameras | 4 | 8 | 40 | 69 | 1.56 |
| 10 | Electronic Chalkboards or Smartboards | 47 | 13 | 51 | 10 | 2.80 |
| 11 | Hypermedia Texts | 16 | 9 | 72 | 24 | 2.14 |
| 12 | Digital Texts | 49 | 21 | 40 | 11 | 2.89 |
| 13 | Web-Based Texts | 10 | 19 | 81 | 11 | 2.23 |
| 14 | CDROM/DVD Dictionaries and Encyclopedia | 11 | 6 | 29 | 75 | 1.61 |
| 15 | Transparency | 5 | 13 | 65 | 38 | 1.88 |
| 16 | Digital Cameras | 5 | 5 | 61 | 50 | 1.71 |
| 17 | Scanners or Digitizers | 45 | 8 | 38 | 30 | 2.56 |
| 18 | Digital[Web and CD Based ] Video | 15 | 16 | 57 | 33 | 2.11 |
| 19 | Interactive[Web and CD Based]Simulation | 23 | 18 | 70 | 10 | 2.45 |
| 20 | Digital Reading Environments | 28 | 30 | 42 | 21 | 2.54 |
| 21 | Projector | 50 | 8 | 40 | 23 | 2.70 |
| 22 | Television | 13 | 5 | 30 | 73 | 1.65 |
| 23 | Computer | 4 | 4 | 30 | 84 | 1.41 |
| 24 | Graphics | 9 | 3 | 26 | 83 | 1.49 |
| 25 | Digital Audio[Web and CD based] | 12 | 49 | 23 | 37 | 2.30 |
| **Cumulative Mean** | | **2.11** | | | | |

**Decision Mean=2.5**

Table 4 presented the opinions of respondents (Lecturers) on the availability of multimedia resources for effective teaching of Social Studies in colleges of education in North-Central Nigeria. The table is shown to be negative as the decision mean of 2.5 is greater than the cumulative mean of 2.06. The opinion talking about digital texts holds the greatest mean of 2.89, with further details revealing that 49 of the respondents said that it was fully available, 21 of them said that it is partially available, 40 of them said that they are uncertain on the availability of digital texts and 11 of the respondents confirmed that it is not available. The availability of the electronic chalkboards or smartboards attained the second highest mean of 2.80 with further details revealing 47 of the respondents confirmed that it is fully available, 13 of them said that it is partially available, 51 of them are uncertain about the availability and 10 of the respondents said that they are not available.

***Table 5: Cumulative Mean Responses on the Organization of Multimedia Resources for Effective***

| S/No | Items | Response Categories | | | | Mean |
|---|---|---|---|---|---|---|
| | | EO | FO | PO | UO | |
| 1 | Visual Presenter/Document Cameras | 11 | 9 | 70 | 31 | 2.00 |
| 2 | Digital Photos Maps and Schematic Drawings | 8 | 9 | 80 | 24 | 2.01 |
| 3 | Videos/Videodiscs | 12 | 5 | 42 | 62 | 1.73 |
| 4 | Hypermedia Databases | 3 | 13 | 81 | 24 | 1.96 |
| 5 | Printed Photos Maps and Schematic Drawing | 3 | 5 | 50 | 63 | 1.57 |
| 6 | Audio and Video Digitizers | 12 | 5 | 32 | 72 | 1.64 |
| 7 | The World Wide Web | 12 | 7 | 88 | 14 | 2.14 |
| 8 | Digital Still or Video Camera | 4 | 1 | 35 | 81 | 1.40 |
| 9 | Digital Video and Still Image Cameras | 5 | 8 | 16 | 92 | 1.39 |
| 10 | Electronic Chalkboards or Smartboards | 41 | 21 | 32 | 27 | 2.63 |
| 11 | Hypermedia Texts | 12 | 15 | 27 | 67 | 1.77 |
| 12 | Digital Texts | 50 | 10 | 30 | 31 | 2.65 |
| 13 | Web-Based Texts | 7 | 5 | 86 | 23 | 1.97 |
| 14 | CDROM/DVD Dictionaries and Encyclopedia | 4 | 10 | 45 | 62 | 1.64 |
| 15 | Transparency | 5 | 21 | 28 | 67 | 1.70 |
| 16 | Digital Cameras | 4 | 17 | 21 | 79 | 1.55 |
| 17 | Scanners or Digitizers | 4 | 22 | 37 | 58 | 1.77 |
| 18 | Digital[Web and CD Based ] Video | 12 | 8 | 66 | 35 | 1.98 |
| 19 | Interactive[Web and CD Based]Simulation | 4 | 36 | 53 | 28 | 2.13 |
| 20 | Digital Reading Environments | 7 | 55 | 22 | 37 | 2.26 |
| 21 | Projector | 13 | 52 | 35 | 21 | 2.47 |
| 22 | Television | 4 | 16 | 3 | 98 | 1.39 |
| 23 | Computer | 3 | 12 | 5 | 101 | 1.31 |
| 24 | Graphics | 8 | 5 | 24 | 84 | 1.48 |
| 25 | Digital Audio[Web and CD based] | 5 | 18 | 53 | 45 | 1.86 |
| **Cumulative Mean** | | | | | | **1.86** |



**Decision Mean=2.5**

Table 5 presented the opinions of respondents on the organization of multimedia resources for effective teaching of Social Studies in colleges of education in North-Central Nigeria. The cumulative response as shown in the table is negative since the cumulative mean of 1.85 is lower than the decision mean of 2.5. The opinion talking about digital texts holds the greatest mean of 2.65, with further details revealing that 50 of the respondents said that it is effectively organised, 10 of them say that it is fairly organised, 31 of them said that digital texts are poorly organized and 31 of the respondents confirmed that it is unorganized. The organization of the

electronic chalkboards or smartboards attained the second highest mean of 2.63 with further details revealing 41 of the respondents confirmed that it is effectively organised, 21 of them said that it is fairly organised, 32 of them said that it is poorly organized and 27 of the respondents said that it is unorganized.

***Table 6: Cumulative Mean Responses on the Utilization of Multimedia Resources for Effective Teaching of Social Studies in Colleges of Education in North-Central Zone-Nigeria***

| S/No | Items | Response Categories | | | | Mean |
|---|---|---|---|---|---|---|
| | | EU | FU | PU | NU | |
| 1 | Visual Presenter/Document Cameras | 12 | 4 | 80 | 25 | 2.02 |
| 2 | Digital Photos Maps and Schematic Drawings | 9 | 3 | 64 | 45 | 1.80 |
| 3 | Videos/Videodiscs | 12 | 8 | 34 | 64 | 1.76 |
| 4 | Hypermedia Databases | 16 | 47 | 33 | 25 | 2.45 |
| 5 | Printed Photos Maps and Schematic Drawing | 16 | 5 | 24 | 76 | 1.68 |
| 6 | Audio and Video Digitizers | 12 | 23 | 17 | 69 | 1.82 |
| 7 | The World Wide Web | 20 | 10 | 47 | 44 | 2.05 |
| 8 | Digital Still or Video Camera | 12 | 9 | 71 | 29 | 2.03 |
| 9 | Digital Video and Still Image Cameras | 24 | 7 | 38 | 52 | 2.02 |
| 10 | Electronic Chalkboards or Smartboards | 62 | 18 | 21 | 20 | 3.01 |
| 11 | Hypermedia Texts | 26 | 1 | 64 | 30 | 2.19 |
| 12 | Digital Texts | 56 | 15 | 31 | 19 | 2.89 |
| 13 | Web-Based Texts | 14 | 5 | 80 | 22 | 2.09 |
| 14 | CDROM/DVD Dictionaries and Encyclopedia | 9 | 11 | 66 | 35 | 1.95 |
| 15 | Transparency | 13 | 20 | 7 | 81 | 1.71 |
| 16 | Digital Cameras | 5 | 10 | 35 | 71 | 1.58 |
| 17 | Scanners or Digitizers | 6 | 59 | 33 | 23 | 2.40 |
| 18 | Digital[Web and CD Based ] Video | 16 | 9 | 60 | 36 | 2.04 |
| 19 | Interactive[Web and CD Based]Simulation | 6 | 13 | 59 | 43 | 1.85 |
| 20 | Digital Reading Environments | 43 | 18 | 34 | 26 | 2.64 |
| 21 | Projector | 5 | 13 | 16 | 87 | 1.47 |
| 22 | Television | 5 | 10 | 6 | 100 | 1.34 |
| 23 | Computer | 5 | 10 | 7 | 99 | 1.35 |
| 24 | Graphics | 10 | 10 | 30 | 71 | 1.66 |
| 25 | Digital Audio[Web and CD based] | 5 | 54 | 39 | 23 | 2.34 |
| **Cumulative Mean** | | | | | | **2.00** |

**Decision Mean=2.5**

Table 6 showed the cumulative opinions of the respondents on the utilization of multimedia resources for effective teaching of Social Studies in colleges of education in North-Central Nigeria. The detail as shown in the table is negative as the decision mean of 2.5 is greater than the cumulative mean of 2.00. The opinion talking about electronic chalkboards or smart boards

holds the greatest mean of 3.01, with further details revealing that 62 of the respondents said that it is effectively utilized, 18 of them said that it is fairly utilized, 21 of them said that electronic chalkboards or smart boards are poorly utilized and 20 of the respondents confirmed that it is not utilized. The utilization of the digital texts attained the second highest mean of 2.89 with further details revealing 56 of the respondents confirmed that it is effectively utilized, 15 of them said that it is fairly utilized, 31 of them opined that they are poorly utilized and 19 of the respondents said that they are not utilized.

### 4.4 Answers to Research Questions

Presented in tables 7-12 are quantitative and qualitative answers provided for the questions raised by the study. The frequency counts, arithmetic means and standard deviations are used as statistical tools to answer the questions raised.

**Research Question One:** What is the difference in the opinions of male and female Lecturers on the Availability of Multimedia Resources for effective teaching of Social Studies in colleges of education in North-Central Zone?

***Table 7: Descriptive statistics on the cumulative opinions of male and female lecturers on the availability of multimedia resources for effective teaching of Social Studies in colleges of education in North-Central Zone-Nigeria***

| Variable | Gender | N | Mean | Std.Dev | Mean Diff |
|---|---|---|---|---|---|
| Availability | Male | 95 | 74.3789 | 10.912 | |
| | | | | | 2.7635 |

| | | | | |
|---|---|---|---|---|
| | Female | 26 | 71.6154 | 6.1714 |

Results of the descriptive statistics in table 7 showed the difference in the opinions of male and female respondents (Lecturers) on the availability of multimedia resources for effective teaching of Social Studies in colleges of education in North-Central Nigeria. The computed mean opinions on the availability of multimedia resources are 74.3789 and 71.6154 by male and female respondents respectively. There is mean difference of 2.7635 in favour of the male respondents.

**Research Question Two:** What is the difference in the opinions of male and female Lecturers on the Organization of Multimedia Resources for effective teaching of Social Studies in colleges of education in North-Central Zone?

***Table 8: Descriptive statistics on the cumulative opinions of male and female lecturers on the organization of multimedia resources for effective teaching of Social Studies in colleges of education in North-Central Zone-Nigeria***

| Variable | Gender | N | Mean | Std.Dev | Mean Diff |
|---|---|---|---|---|---|
| Organization | Male | 95 | 78.7579 | 12.169 | 0.7579 |
| | Female | 26 | 78.0000 | 8.104 | |

Detail of the descriptive statistics in table 8 showed the difference in the opinions of male and female respondents (Lecturers) on the organization of multimedia resources for effective teaching of Social Studies in colleges of education in North-Central Nigeria. The computed mean opinions regarding the organization of multimedia resources are 78.7579 and 78.0000 for male and female respondents respectively. There is mean difference of 0.7579 in favour of the male respondents.

**Research Question Three:** What is the difference in the opinions of male and female Lecturers on the Utilization of Multimedia Resources for effective teaching of Social Studies in colleges of education in North-Central Zone?

***Table 9: Descriptive statistics on the opinions of male and female lecturers on the utilization of multimedia resources for effective teaching of Social Studies in colleges of education in North-Central Zone-Nigeria***

| Variable | Gender | N | Mean | Std.dev | Mean Diff |
|---|---|---|---|---|---|
| Utilization | Male | 95 | 75.2632 | 15.297 | |
| | | | | | 1.6094 |
| | Female | 26 | 73.6538 | 6.746 | |

Detail of the descriptive statistics in table 9 showed the difference in the opinions of male and female respondents (Lecturers) on the utilization of multimedia resources for effective teaching of Social Studies in colleges of education in North-Central Nigeria. The computed mean opinions regarding the utilization of multimedia resources are 75.2632 and 73.6538 for male and female respondents respectively. There is mean difference of 1.6094 in favour of male respondents.

**Research Question Four:** What is the difference in the opinions of state and federal college Lecturers on the Availability of Multimedia Resources for effective teaching of Social Studies in colleges of education in North-Central Zone?

***Table 10: Descriptive statistics on the opinions of state and federal college lecturers on the availability of multimedia resources for teaching Social Studies in colleges of education in North-Central Zone-Nigeria***

| Variable | Category | N | Mean | Std.Dev | Mean Diff |
|---|---|---|---|---|---|
| Availability | State | 66 | 73.1364 | 6.623 | |
| | | | | | 1.4272 |
| | Federal | 55 | 74.5636 | 13.1863 | |

Results of the descriptive statistics in table 10 showed the difference in the mean opinions of state and federal college respondents (Lecturers) on the availability of multimedia resources for effective teaching of Social Studies in colleges of education in North-Central Nigeria. The computed mean opinions regarding the availability of multimedia resources are 74.5636 and 73.1364 by Federal and state college respondents respectively. There is mean difference of 1.4272 in favour of the Federal college lecturers.

**Research Question Five:** What is the difference in the opinions of state and federal college Lecturers on the Organization of Multimedia Resources for effective teaching of Social Studies in colleges of education in North-Central Zone?

***Table 11: Descriptive statistics on the opinions of state and federal college lecturers on the organization of multimedia resources for teaching Social Studies in colleges of education in North-Central Zone-Nigeria***

| Variable | Category | N | Mean | Std.Dev | Mean Diff |
|---|---|---|---|---|---|
| Organization | State | 66 | 83.1667 | 2.605 | |
| | | | | | 10.0576 |
| | Federal | 55 | 73.1091 | 14.968 | |

Details of the descriptive statistics in table 11 showed the difference in the mean opinions of state and federal college respondents (Lecturers) on the organization of multimedia resources for effective teaching of Social Studies in colleges of education in North-Central Nigeria. The computed mean opinions regarding the organization of multimedia resources are 73.1091 and 83.1667 for federal and state college respondents respectively. There is mean difference of 10.0576 in favour of federal college respondents.

**Research Question Six:** What is the difference in the opinions of state and federal college Lecturers on the Utilization of Multimedia Resources for effective teaching of Social Studies in colleges of education in North-Central Zone?

***Table 12: Descriptive statistics on the opinions of state and federal college lecturers on the utilization of multimedia resources for teaching Social Studies in colleges of education in North-Central Zone-Nigeria***

| Variable | Category | N | Mean | Std.Dev | Mean Diff |
|---|---|---|---|---|---|
| Utilization | State | 66 | 77.6667 | 8.915 | 6.0485 |
| | Federal | 55 | 71.6182 | 17.703 | |

Details of the descriptive statistics in table 12 showed the difference in the mean opinions of state and federal college respondents (Lecturers) on the utilization of multimedia resources for effective teaching of Social Studies in colleges of education in North-Central Nigeria. The computed mean opinions regarding the utilization of multimedia resources are 71.8182 and 77.6667 by Federal and state college respondents respectively. There is mean difference of 8.0464 in favour of state college respondents.

### 4.5 Test of Null Hypotheses

The hypotheses formulated in the study are statistically tested using independent samples t-test. The outcomes of the statistical analysis are presented in tables' 13-18 to the guide the study on either to retain or reject the null hypotheses set by the study.

**Hypothesis One:** There is no significant difference in the opinions of male and female Lecturers on the Availability of Multimedia Resources for effective teaching of Social Studies in colleges of education in North-Central Zone;

***Table 13: Independent t test samples statistics on the difference in the opinions of male and female respondents on the availability of multimedia resources for teaching Social Studies in colleges of education in North-Central Zone-Nigeria***

| Gender | N | Mean | Std.Dev | Df | t-cal | t-crit | P | Decision |
|---|---|---|---|---|---|---|---|---|
| Male | 95 | 74.3789 | 10.912 | | | | | $H0_1$ Retained |
| | | | | 119 | 1.236 | 1.96 | 0.219 | |
| Female | 26 | 71.6154 | 6.1714 | | | | | |

***Calculated p > 0.05, calculated t < 1.96 at DF 119***

Results of the Independent t test statistics in table 13 showed that there is no significant difference in the opinions of male and female respondents (Lecturers) on the availability of multimedia resources for effective teaching of Social Studies in colleges of education in North-Central Zone. This is because the calculated p value of 0.219 is found to be higher than the 0.05 alpha level of significance and the computed t value of 1.236 is found to be lower than the 1.96 t critical at Df 119. The computed mean opinions regarding the availability of multimedia resources are 74.3789 and 71.6154 for male and female respondents respectively. Consequently, the null hypothesis which states that there is no significant difference in the opinions of male and female Lecturers on the Availability of Multimedia Resources for effective teaching of Social Studies in colleges of education in North-Central Zone is hereby retained.

**Hypothesis Two:** There is no significant difference in the opinions of male and female Lecturers on the Organization of Multimedia Resources for effective teaching of Social Studies in colleges of education in North-Central Zone;

***Table 14: Independent t test samples statistics on the difference in the opinions of male and female respondents on the organization of multimedia resources for teaching Social Studies in colleges of education in North-Central Zone-Nigeria***

| Gender | N | Mean | Std.dev | Df | t-cal | t-crit | P | Decision |
|---|---|---|---|---|---|---|---|---|

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Male | 95 | 78.7579 | 12.169 | | | | | $H0_2$ Retained |
| | | | | 119 | 0.299 | 1.96 | 0. 765 | |
| Female | 26 | 78.0000 | 8.104 | | | | | |

***Calculated p > 0.05, calculated t < 1.96 at DF 119***

Results of the independent samples t-test statistics in table 14 showed that there is no significant difference in the opinions of male and female respondents on the organization of multimedia resources for effective teaching of Social Studies in colleges of education in North-Central Zone. This is because the calculated p value of 0.765 is found to be higher than the 0.05 alpha level of significance and the computed t value of 1.236 is found to be lower than the 1.96 t critical at Df 119. Their computed mean opinions regarding the organization of multimedia resources are 78.7579 and 78.0000 for male and female respondents respectively. Therefore the null hypothesis which states that there is no significant difference in the opinions of male and female respondents on the organization of multimedia resources for effective teaching of Social Studies in colleges of education in North-Central Zone is hereby retained

**Hypothesis Three:** There is no significant difference in the opinions of male and female Lecturers on the Utilization of Multimedia Resources for effective teaching of Social Studies in colleges of education in North-Central Zone;

***Table 15: Independent t-test samples statistics on the difference in the opinions of male and female respondents on the utilization of multimedia resources for teaching Social Studies in colleges of education in North-Central Zone-Nigeria***

| Gender | N | Mean | Std.dev | Df | t-cal | t-crit | P | Decision |
|---|---|---|---|---|---|---|---|---|
| Male | 95 | 75.2632 | 15.297 | | | | | $H0_3$ Retained |
| | | | | 119 | 0.521 | 1.96 | 0.603 | |
| Female | 26 | 73.6538 | 6.746 | | | | | |

***Calculated p > 0.05, calculated t < 1.96 at DF 119***

Results of the independent samples t-test statistics in table 15 showed that there is no significant difference in the opinions of male and female respondents on the utilization of multimedia resources for effective teaching of Social Studies in colleges of education in North-Central Zone. This is because the calculated p value of 0.603 is found to be higher than the 0.05 alpha level of significance and the computed t value of 0.521 is found to be lower than the 1.96 t critical at Df 119. Their computed mean opinions regarding the utilization of multimedia resources are 75.2632 and 73.6538 for male and female respondents respectively. Therefore the null hypothesis which state that there is no significant difference in the opinions of male and female respondents on the utilization of multimedia resources for effective teaching of Social Studies in colleges of education in North-Central Zone is hereby retained.

**Hypothesis Four:** There is no significant difference in the opinions of state and federal college Lecturers on the Availability of Multimedia Resources for effective teaching of Social Studies in colleges of education in North-Central Zone;

***Table 16: Independent t-test samples statistics on the difference in the opinions of state and federal college respondents on the availability of multimedia resources for teaching Social Studies in colleges of education in North-Central Zone-Nigeria***

| Gender | N | Mean | Std.dev | Df | t cal | t crit | P | Decision |
|---|---|---|---|---|---|---|---|---|
| Federal | 55 | 74.5636 | 13.1863 | | | | | $H0_4$ Retained |
| | | | | 119 | 0. 771 | 1.96 | 0.442 | |
| State | 66 | 73.1364 | 6.623 | | | | | |

***Calculated p > 0.05, calculated t < 1.96 at DF 119***

Results of the independent t-test samples statistics in table 16 showed that there is no significant difference in the opinions of Federal and state college respondents on the availability of multimedia resources for effective teaching of Social Studies in colleges of education in North-Central Zone. This is because the calculated p value of 0.442 is found to be higher than the 0.05 alpha level of significance and the computed t-value of 0.771 is found to be lower than the 1.96 t critical at Df 119. Their computed mean opinions regarding the availability of multimedia resources are 74.5636 and 73.1364 for federal and state college respondents respectively. Therefore the null hypothesis which state that there is no significant difference in the opinions of federal and state college respondents on the availability of multimedia resources for effective teaching of Social Studies in colleges of education in North-Central Zone is hereby retained.

**Hypothesis Five:** There is no significant difference in the opinions of state and federal college Lecturers on the Organization of Multimedia Resources for effective teaching of Social Studies in colleges of education in North-Central Zone;

***Table 17: Independent t-test samples statistics on the difference in the opinions of state and federal college respondents on the organization of multimedia resources for teaching Social Studies in colleges of education in North-Central Zone-Nigeria***

| Gender | N | Mean | Std.Dev | Df | t-cal | t-crit | P | Decision |
|---|---|---|---|---|---|---|---|---|
| Federal | 55 | 73.1091 | 14.968 | | | | | $H0_5$ Rejected |
| | | | | 119 | 5.366 | 1.96 | 0.000 | |
| State | 66 | 83.1667 | 2.605 | | | | | |

***Calculated p < 0.05, calculated t > 1.96 at DF 119***

Results of the independent t-test samples statistics in table 17 showed that there is significant difference in the opinions of federal and state college respondents on the organization of multimedia resources for effective teaching of Social Studies in colleges of education in North-Central Zone. This is because the calculated p value of 0.00 is found to be lower than the 0.05 alpha level of significance and the computed t value of 5.366 is found to be higher than the 1.96 t critical at Df 119. Their computed mean opinions regarding the organization of multimedia resources are 74.5636 and 73.1364 for federal and state college respondents respectively. Therefore the null hypothesis which states that there is no significant difference in the opinions of federal and state college respondents on the organization of multimedia resources for effective teaching of Social Studies in colleges of education in North-Central Zone is hereby rejected.

**Hypothesis Six:** There is no significant difference in the opinions of state and federal college Lecturers on the Utilization of Multimedia Resources for effective teaching of Social Studies in colleges of education in North-Central Zone.

***Table 18: Independent t-test samples statistics on the difference in the opinions of state and federal college respondents on the utilization of multimedia resources for teaching Social Studies in colleges of education in North-Central Zone-Nigeria***

| Category | N | Mean | Std.Dev | Df | t-cal | t-crit | P | Decision |
|---|---|---|---|---|---|---|---|---|
| Federal | 55 | 71.6182 | 17.703 | | | | | H06 Rejected |
| | | | | 119 | 2.431 | 1.96 | 0.017 | |
| State | 66 | 77.6667 | 8.915 | | | | | |

***Calculated p < 0.05, calculated t > 1.96 at DF 119***

Results of the independent t-test samples statistics in table 18 showed that there is significant difference in the opinions of federal and state college respondents on the utilization of multimedia resources for effective teaching of Social Studies in colleges of education in North-Central Zone. This is because the calculated p value of 0.017 is found to be lower than the 0.05 alpha level of significance and the computed t value of 2.431 is found to be higher than the 1.96 t critical at Df 119. Their computed mean opinions regarding the utilization of multimedia resources are 71.8182 and 77.6667 for federal and state college respondents respectively. Therefore the null hypothesis which states that there is no significant difference in the opinions of federal and state college respondents on the utilization of multimedia resources for effective teaching of Social Studies in colleges of education in North-Central Zone is hereby rejected.

## 4.6 Summary of Major Findings

The findings of the study revealed that:

1. There is no significant difference in the opinions of male and female respondents (Lecturers) on the availability of multimedia resources for effective teaching of Social Studies in colleges of education in North-Central Zone. This is because the calculated p value of 0.219 is found to be higher than the 0.05 alpha level of significance and the computed t value of 1.236 is found to be lower than the 1.96 t critical at Df 119.

2. There is no significant difference in the opinions of male and female respondents on the organization of multimedia resources for effective teaching of Social Studies in colleges of education in North-Central Zone. This is because the calculated p value of 0.765 is found to be higher than the 0.05 alpha level of significance and the computed t value of 1.236 is found to be lower than the 1.96 t critical at Df 119.

3. There is no significant difference in the opinions of male and female respondents on the utilization of multimedia resources for effective teaching of Social Studies in colleges of education in North-Central Zone. This is because the calculated p value of 0.603 is found to be higher than the 0.05 alpha level of significance and the computed t value of 0.521 is found to be lower than the 1.96 t critical at Df 119.

4. There is no significant difference in the opinions of Federal and state college respondents on the availability of multimedia resources for effective teaching of Social Studies in colleges of education in North-Central Zone. This is because the calculated p value of 0.442 is found to be higher than the 0.05 alpha level of significance and the computed t-value of 0.771 is found to be lower than the 1.96 t critical at Df 119.

5. There is significant difference in the opinions of federal and state college respondents on the organization of multimedia resources for effective teaching of Social Studies in colleges of education in North-Central Zone. This is because the calculated p value of 0.00 is found to be lower than the 0.05 alpha level of significance and the computed t value of 5.366 is found to be higher than the 1.96 t critical at Df 119.

6. There is significant difference in the opinions of federal and state college respondents on the utilization of multimedia resources for effective teaching of Social Studies in colleges of education in North-Central Zone. This is because the calculated p value of 0.017 is found to be lower than the 0.05 alpha level of significance and the computed t value of 2.431 is found to be higher than the 1.96 t critical at Df 119.

## 4.7 Discussion of Findings

First and foremost, the study revealed that there was no significant difference in the opinions of male and female respondents (Lecturers) on the availability of multimedia resources for effective teaching of Social Studies in colleges of education in North-Central Zone. This was because the calculated p value of 0.219 is found to be higher than the 0.05 alpha level of significance and the computed t value of 1.236 was found to be lower than the 1.96 t critical at Df 119. in sharp contrast to the finding made by this study, Salihu, Abubakar and Abubakar (2016) in a study titled "Assessment of Teachers' Awareness and Utilization of Online Information Resources for Implementing Social Studies Curriculum in Colleges of Education in Nigeria" discovered that there was no significant difference between male and female teachers on the level of awareness of online Information Resources for the implementation of Social Studies Education curriculum in Colleges of Education in Nigeria. Most of the teachers are aware of these resources but they are not accessible in the colleges for effective utilization by Social Studies lecturers. Corroborating the findings of this study, Gulbahar & Guven (2008) in their

study consisting 326 Social Studies teachers who teach fourth and fifth grade at primary level in Turkey discover that although teachers are willing to use ICT resources and are aware of the existing potential, they are facing problems in relation to accessibility to ICT resources and lack of in-service training opportunities. This may be the reason why there is disparity among social studies teachers in relation to the institutions they belonged (Federal and States Colleges of Education).

In contrast, Okiki (2012) in a study of issues of Electronic Information Resources Awareness, Attitude and Use by Academic staff members of University of Lagos, Nigeria confirmed that 55% of academic staff members indicated that the level of awareness of the subscribed electronic information resources by the Library Management is rather low. The study records that the reasons why academic staff members of University of Lagos use electronic information resources are; research activity, Paper writing for publication, and teaching. According to Bar-Ilan, Peritz, and Wolman (2003) the most active users of electronic journals are the younger members of the teaching and research staff. In a related study, Bush (2004) showed that age was not an influential factor in whether the respondents read articles on paper or in electronic format. The current study did not look at the age-bracket and experiences of teachers in terms of awareness and utilization of online information resources for teaching social studies but nonetheless it is able to discover that Social Studies teachers from state-owned Colleges of Education had higher level of awareness and utilization of online information resources than teachers from Federal Colleges of Education.

Secondly, it was discovered in the study that there was no significant difference in the opinions of male and female respondents on the organization of multimedia resources for effective teaching of Social Studies in colleges of education in North-Central Zone. This was because the calculated p value of 0.765 was found to be higher than the 0.05 alpha level of significance and

the computed t value of 1.236 is found to be lower than the 1.96 t critical at Df 119. The organization of available multimedia resources in the study area is poor as revealed by the study. This is perhaps due to unavailability of infrastructure, technical-know-how of lecturers in social studies and inadequate time to utilize these resources for optimum results.

Thirdly, the study found that there was no significant difference in the opinions of male and female respondents on the utilization of multimedia resources for effective teaching of Social Studies in colleges of education in North-Central Zone. This was because the calculated p value of 0.603 is found to be higher than the 0.05 alpha level of significance and the computed t value of 0.521 was found to be lower than the 1.96 t critical at Df 119. Corroborating this finding, Salihu, Abubakar and Abubakar (2016) discovered that gender does not affect teachers' utilization level of online Information Resources for the implementation of Social Studies curriculum in Colleges of Education.

Fourthly, the study revealed that there was no significant difference in the opinions of Federal and state college respondents on the availability of multimedia resources for effective teaching of Social Studies in colleges of education in North-Central Zone. This was because the calculated p value of 0.442 was found to be higher than the 0.05 alpha level of significance and the computed t-value of 0.771 was found to be lower than the 1.96 t critical at Df 119. Contradicting this finding, Salihu, Abubakar and Abubakar (2016) discovered significant difference in the opinions of states and federal college respondents on their awareness of online e-resources for implementing Social Studies curriculum in Colleges of Education in North-West Zone, Nigeria. Social Studies teachers of States owned Colleges of Education had higher level of awareness of online Information Resources than their counterparts in Federal Colleges of Education in Nigeria as revealed by the study. Corroborating the findings made by this study, Muhammad (2011)

conducted a study titled “Effects of the availability and the use of instructional materials on academic performance of students in Punjab-Pakistan”. The study investigates the effect of the availability and the use of instructional material on academic performance of students in Punjab (Pakistan). The study identified that there is a great deficiency in the availability and the used of instructional material. The study concluded that the less availability, misallocation and the deficiency in the use of instructional material lead to the wastage of resources, the less effectiveness of instructional material and lower academic performance. The policy implications of the study are that instructional material can have an enormous effect if is properly allocated, equalized per student and efficiently used with the standard quantity and quality.

Furthermore, the study discovered that there was significant difference in the opinions of federal and state college respondents on the organization of multimedia resources for effective teaching of Social Studies in colleges of education in North-Central Zone. This was because the calculated p value of 0.00 was found to be lower than the 0.05 alpha level of significance and the computed t value of 5.366 was found to be higher than the 1.96 t critical at Df 119. Most colleges of education under the control of the state governments have the necessary infrastructures to support effective utilization of multimedia resources. This is because apart from Kwara state that has two state-owned colleges of education; all the states in the study area have one each. This perhaps gives them (state-owned colleges of education) an edge over federal colleges of education in terms of manpower, monitoring and evaluation and in provision and maintenance of basic infrastructures.

Moreover, it was revealed that there was significant difference in the opinions of federal and state college respondents on the utilization of multimedia resources for effective teaching of Social Studies in colleges of education in North-Central Zone. This is because the calculated p

value of 0.017 is found to be lower than the 0.05 alpha level of significance and the computed t value of 2.431 was found to be higher than the 1.96 t critical at Df 119. According to Salihu, Abubakar and Abubakar (2016) in their study, the utilization level of online Information Resources was higher with Social Studies teachers in States owned Colleges of Education than that of teachers in Federal Colleges of Education in Nigeria.

Moreover, Ehikhamenor (2003a) in a study on the use and non-use of the internet facilities by Academic Scientists in Ten Nigerian Universities indicates that, "the scientists are still heavily dependent on printed sources", although about 50.4% of them have access to, and are using, the internet in their teaching/research. The study attributed non-use of the internet "to the problems of accessibility, ease of use, analysis of internet use by academic staff and cost". The Social Studies teachers in Colleges of Education in the study area (North-central Zone) are aware and utilize online information resources on average unlike in Ehikhamenor (2003a) study where 49.4% Academic Scientists in the study area heavily rely on printed materials. In a related study, Azubogu and Madu (2007) in a study on the use of computer and internet technology among the teaching staff of Imo State University", Nigeria discovered a high level of use of information technology by the respondents. This is in contrast with the findings of the current study which indicates moderate or average level of utilization of online information resources by Social Studies teachers in Colleges in the study area.

In sharp contrast with current findings of this study, Ahmad and Panda (2013) in a study which was carried out to find out whether the faculty members of Indian Institutes in Dubai International Academic City (DIAC) are aware of and fully utilize the library databases and other electronic information resources within and outside the libraries discovered that majority of the faculty members are aware and use the electronic information resources. The study confirmed

to some extent the lack of knowledge and use of libraries specific resources such as e-theses, patents and CD-ROM database. In the current study, Social Studies lecturers in Colleges of Education are fully aware of these resources.

In line with the finding made by the current study, Bostan (2015) conducted a study titled "Focus-group Research on Modern Techniques and Multimedia Tools Implementation in Teaching Practice." The research discovered that although digital technologies are fully integrated into the way people interact, at work, when they are engaged in business and doing trade, ICT are not yet fully exploited into the education system and training in Romania. The study shows that the vast majority of teachers (87%) use digital resources in the didactic process. Of these, 70% use modern resources during the assessment process of students through the elaboration of projects, essays, portfolios. Most teachers use information and communication technology (ICT) primarily to prepare teaching materials - posters, educational movies or PowerPoint presentations, not to work with students during classes as computer modeling, experimental simulations in real time, collection/ analysis of experimental data and plotting (17%). The vast majority of teachers (78%) do not use the interactive whiteboard in teaching. Among those who use it, a large percentage respectively half (11%) rarely use it, but does not specify how often. Only a small proportion of respondents (11%) said that they used as didactical mean.

It was concluded that the interactive whiteboard is used in the educational process at a rate of 89% due to the small number of existing interactive whiteboards in the schools, on the one hand, and on the other hand, teachers do not know how to use it. Using the computer and multimedia tools in teaching is considered beneficial by 56% of teachers that using it effective (87%) of the participants in this study. A significant percentage (44%) points out that an excessive use of the computer may induce students a passive attitude. From the research result

that implementation of the AEL system in schools does not have expected performance because it is used in a proportion of 11%. The implications of inclusion the computer in physics classes are considered positive, especially in data processing in laboratory work, plotting or observing physical phenomena which cannot be reproduced in the laboratory school. 90% of focus group participants have recognized that they give as homework realization of projects through the computer. 22% of teachers surveyed are skeptical regarding the evolution of formal learning via computer. Their skepticism was justified by the huge costs that are imposed, the development of digital resources for teachers and students, tablets for students and teachers.

The majority of 78% believe that IT resources will be increasingly more integrated into the educational process. It speaks even a reversed learned-Flipped classroom in which the student scroll the learned material at home (manual in digital format), the teacher's role being to provide digital content for learning at home/ in class, and as tutor in the learning process and the time required consolidation and perform experimental work increases considerably. The conclusions drawn in Bostan (2015) study are: teachers are eager to improve their digital skills; there is availability from some talented physics teachers, to programming the didactical experiments; there are the conservative teachers who do not consider the progress as a beneficial intervention in school. Unless policies are changed, the introduction of computers, of interactive whiteboard, of the tablet in school becomes a necessity.

Moreover, reviewing research findings that could guide future educational uses of multimedia/hypermedia, Roblyer (1999) found that multimedia’s benefits seem to center on its ability to offer students multiple channels through which to process information. However, researchers are cautious about recommending multimedia to support specific kinds of learning. Swan and Meskill (1996) examined how effectively current hypermedia products support the

teaching and acquisition of critical thinking skills in reading and language. They reviewed hypermedia products as to how well they made possible response-based approaches to teaching and learning literature, that is, instructional activities that “place student-generated questions at the center of learning ... (and encourage) a problem-finding as well as a problem solving approach to critical thinking” (p. 168). They evaluated 45 hypermedia literature programs using criteria in three areas: technical items, response-based concerns, and classroom issues.

# CHAPTER FIVE

# SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

## 5.1 Introduction

This chapter deals with the summary of research, conclusions on the basis of findings of the research. Also some recommendations are put forward based on the conclusions, contributions to knowledge and suggestion for further research.

## 5.2 Summary

The study evaluated the availability, organization and utilization of multimedia resources for effective teaching of Social Studies in colleges of education in North-Central, Nigeria. The study was guided by six specific objectives, six corresponding research questions null hypotheses. The study is expected to benefits lecturers of Social Studies in colleges of education in North-Central Zone, federal and state regulating authorities, policy makers, students of social studies, researchers and even leisure readers in understanding the state of the availability, organization and utilization of multimedia resources for effective implementation of Social Studies curriculum.However, the study used male and female lecturers of social studies selected from state and federal colleges of education in the study area (north-central, Nigeria).

Furthermore, survey research design is used. The study used census purposive sampling because of the manageability of the population of the study. The study also used structured questionnaire titled "Availability, Organization and Utilization of Multimedia Resources Questionnaire (AOUMREQ) as data collection instrument. The instrument is validated by supervisors and statisticians for content and face values. The study pilot tested the instrument and it is certified as statistically fit for the main work.

However, the study used independent samples t-test to validate the study's null hypotheses and arithmetic mean, standard deviation to answer the research questions. The basic personal information of the respondents (gender and college ownership) was presented in this chapter. Also the cumulative response tables were also presented followed by the answer to research questions and test of null hypotheses. The study however discovered that:

i. There is no significant difference in the opinions of male and female respondents (Lecturers) on the availability of multimedia resources for effective teaching of Social Studies in colleges of education in North-Central Zone. This is because the calculated p value of 0.219 is found to be higher than the 0.05 alpha level of significance and the computed t value of 1.236 is found to be lower than the 1.96 t critical at Df 119.

ii. There is no significant difference in the opinions of male and female respondents on the organization of multimedia resources for effective teaching of Social Studies in colleges of education in North-Central Zone. This is because the calculated p value of 0.765 is found to be higher than the 0.05 alpha level of significance and the computed t value of 1.236 is found to be lower than the 1.96 t critical at Df 119.

iii. There is no significant difference in the opinions of male and female respondents on the utilization of multimedia resources for effective teaching of Social Studies in colleges of

education in North-Central Zone. This is because the calculated p value of 0.603 is found to be higher than the 0.05 alpha level of significance and the computed t value of 0.521 is found to be lower than the 1.96 t critical at Df 119.

iv. There is no significant difference in the opinions of Federal and state college respondents on the availability of multimedia resources for effective teaching of Social Studies in colleges of education in North-Central Zone. This is because the calculated p value of 0.442 is found to be higher than the 0.05 alpha level of significance and the computed t-value of 0.771 is found to be lower than the 1.96 t critical at Df 119.

v. There is significant difference in the opinions of federal and state college respondents on the organization of multimedia resources for effective teaching of Social Studies in colleges of education in North-Central Zone. This is because the calculated p value of 0.00 is found to be lower than the 0.05 alpha level of significance and the computed t value of 5.366 is found to be higher than the 1.96 t critical at Df 119.

vi. There is significant difference in the opinions of federal and state college respondents on the utilization of multimedia resources for effective teaching of Social Studies in colleges of education in North-Central Zone. This is because the calculated p value of 0.017 is found to be lower than the 0.05 alpha level of significance and the computed t value of 2.431 is found to be higher than the 1.96 t critical at Df 119.

### 5.1 Conclusions

Based on the outcome the following conclusions are drawn:

The male and female respondents (Lecturers) have agreed that multimedia resources for effective teaching of Social Studies in colleges of education in North-Central Zone are not adequate;

The male and female respondents (Lecturers)have concurred that multimedia resources for effective teaching of Social Studies in colleges of education in North-Central Zone are not adequately organised;

The male and female respondents (Lecturers) have agreed that multimedia resources for effective teaching of Social Studies in colleges of education in North-Central Zone are not effectively utilized;

The Federal and state college respondents (lecturers) have agreed that multimedia resources for effective teaching of Social Studies in colleges of education in North-Central Zone are not adequate;

The federal and state college respondents (Lecturers)have dissenting opinions on the organization of multimedia resources for effective teaching of Social Studies in colleges of education in North-Central Zone.

The federal and state college respondents (Lecturers) have diverse opinions on the utilization of multimedia resources for effective teaching of Social Studies in colleges of education in North-Central Zone.

### 5.4 Contributions to Knowledge

The study has the following contribution to knowledge and literary presentations:

1. The study has added to the body of knowledge and served as a confirmation that multimedia resources are not adequate, unorganized and unutilized by Lecturers of Social Studies in colleges of education in North-Central, Nigeria;

2. The study has concurred to other similar findings on that multimedia resources are not adequate, unorganized and unutilized by Lecturers of Social Studies in colleges of education in North-Central, Nigeria and will serve as a basis to generalize the findings;
3. The study avail future researchers with questions that will motivate their curiosity to partake in other studies with a view to fill the gaps left.

### 5.5 Recommendations

From the outcome of this study, the following recommendations are made:

1. The male and female respondents (Lecturers) have agreed that multimedia resources for effective teaching of Social Studies in colleges of education in North-Central Zone are not available. Therefore, the states and federal government should allocate funds adequate for the procurement of multimedia resources to facilitate effective communication and transaction between lecturers (male and female) and the students in Social Studies lessons;
2. The male and female respondents (Lecturers) have concurred that multimedia resources for effective teaching of Social Studies in colleges of education in North-Central Zone are not adequately organised. In this regard, workshops, seminars and in-house training for male and female Social Studies Lecturers in colleges of education should be organised periodically to equip them with skills and competencies organization of multimedia resources;
3. The male and female respondents (Lecturers) have agreed that multimedia resources for effective teaching of Social Studies in colleges of education in North-Central Zone are not effectively utilized. Therefore, evidence of utilization of available multimedia

resources by male and female Social Studies lecturers for teaching and research should form part of the necessary requirements for promotion and other benefits. This will encourage lecturers of Social Studies to know more and frequently utilize these resources for effective service delivery;

4. The Federal and state college respondents (lecturers) have agreed that multimedia resources for effective teaching of Social Studies in colleges of education in North-Central Zone are not available. Therefore, adequate multimedia materials and resources should be made available to federal and state college lecturers in order to discharge their duties effectively;
5. The federal and state college respondents (Lecturers) have dissenting opinions on the organization of multimedia resources for effective teaching of Social Studies in colleges of education in North-Central Zone. Therefore, lecturers of Social Studies in federal college education should be trained to effectively organised these resources in order to discharge their duties effectively;
6. The federal and state college respondents (Lecturers) have diverse opinions on the utilization of multimedia resources for effective teaching of Social Studies in colleges of education in North-Central Zone. Therefore, more practice-based courses on ICT should be included in the curriculum of staff training programme in federal colleges of education where the utilization is low.

### 5.6 Suggestions for Further Studies

Similar studies should be conducted in other zones of the country to determine the availability, organization and utilization of multimedia resources for effective teaching of social studies in colleges of education.

**REFERENCES**


Abdallah, J. (2013). An analysis of evaluations of interactive video.*Educational Technology*, 25, 7-16.

Abdulkareem, Y. A. (1986). "A Study of Social Studies and Students Perception of Social Studies and Teaching Methods in Social Studies in Selected GradeIII Teacher's Colleges in Northern Nigeria." M.ED Thesis. A. B. U. Zaria.

Abimbade, A. (1997). *Principle and Practice of Educational Technology*. Ibadan: International Publisher Ltd pg. 44-50.

Abubakar, I.D., Salihu, J.J. & Usman, U. (2016). Socio-economic Skills for Self-reliance Development among Undergraduate Students of ABU and FCE, Zaria-Nigeria. *Nigeria Journal of Social Studies and Civic Education* (NJSSCE) 9(2), 182-196, December, 2016.

Acikalin, M., & Duru, E. (2005).The use of computer technologies in the Social Studies classroom. The Turkish Online Journal of Educational Technology – TOJET, 4(2), 18-26.

Adoke, I. M (2015).*Effects of Simulation Games Teaching Strategy on academic Performance of Upper Basic Level Students in Civic Education in Kaduna state*. An Unpublished M.Ed. Thesis submitted to Post-graduate School, Ahmadu Bello University, Zaria.

Agnew, P. W., Kellerman, A. S. & Meyer, J. (1996). *Multimedia in the Classroom*, Boston: Allyn and Bacon.

Agun, I. and Imogie, I. (1988).*Fundamentals of Educational Technology.*Ibadan: Y-Books.

Ahmad, M. & Panda, K.C. (2013) Awareness and use of electronic information resources by the faculty members of Indian institutes in Dubai international academic city (diac): A survey. Retrieved from: http://www.interesjournals.org/full-articles/awareness-and-use-of-

electronic-information-resourcesby-the-faculty-members-of-indian-institutes-in-dubai-international-academic-city-diac-asurvey.pdf?view=inline

Ajzen, I., & Fishbein, M. (1980).*Understanding attitudes and predicting behavior*. Englewood Cliffs, N.J.: Prentice Hall.

Akimpelu, J.A, (1991). *Philosophy of Education.*London: Macmillan. Only Available on the Manitoba Education, Citizenship and Youth website at <www.edu.gov.mb.ca/kl2/cur/socstud/index.html>.

Akinlaye, F. A. (1981), "Why Social Studies?" in The Concept and Scope of Social Studies Education for Schools and Colleges. NERC

Akpabio, E. (2004) Nigerian Home Video Films as a Catalyst for Nigerian Development, *Journal of Sustainable Development 1(1), 5-10.*

Alaku, P.O. (1998) Instructional Strategies and Audio-Visual Aids for Teachers Effectiveness, *Bichi Journal of Education* 2(1), 114-117.

Alao, E. A. (1990). A scale for measuring secondary school students' attitude towards physics.*Journal of Science Teachers Association of Nigeria*, 26(2), 75-79.

Alessi, S. & Trollip, S. (2001). Multimedia for learning. New Jersey: Allyn and Bacon

Alfa, M. G. (2016). *Assessment of the Management of Staff Schools in Federal Tertiary Educational Institutions in Kaduna State, Nigeria*. Unpublished (M.Ed) Thesis Submitted to Department of Foundation and Curriculum, ABU Zaria, Nigeria.

Algerioy, A. (1999). The impact of multimedia on the collection of first-grade students in secondary mathematics in Riyadh, unpublished Master Thesis, King Saud University.

Ali, M. S., & Awan, A. S. (2013).Attitude towards science and its relationship with students' achievement in science.*Interdisciplinary Journal of Contemporary Research in Business*, 4(10), 707-719.

Aloraini,S. (2012) The impact of using multimedia on students' academic achievement in the College of Education at King Saud University *Journal of King Saud University - Languages and Translation* 24: 2. 75-82 July

Altherr, S., Wagner, A., Eckert, B. & Jodl, H. J. (2004). Multimedia material for teaching physics (search, evaluation and examples). European Journal of Physics, Vol. 25, No. 1, 7–14. DOI:10.1088/0143-0807/25/1/002

Altherr, S., Wagner, A., Eckert, B., & Jodl, H. J. (2004). Multimedia material for teaching physics (search, evaluation, and examples). *European Journal of Physics*, 25, 7-14.

Anic, V. (2003).Veliki rjecnik hrvatskog jezika. Zagreb: Novi Liber.

Anwer, M., Iqbal, H. M., & Harrison, C. (2012). Students' attitude towards science: A case of Pakistan. *Pakistan Journal of Social and Clinical Psychology*, 10(1), 3-9.

Atkins-Sayre, W., Hopkins, S., Mohundro, S., & Sayre, W. (1998).*Rewards and liabilities of presentation software as an ancillary tool: Prison or paradise*? Paper presented at The National Communication Association Eighty Fourth Annual Convention, New York.

Australian Education Council (1994).*A statement on science for Australian schools*. Carlton, Vic: Australia Curriculum Corporation.

Australian Science Technology and Engineering Council. (1997). *Foundations for Australia's future: Science and technology in primary schools*. Canberra: AGPS.

Ayinde, A.T. (1999) Resources for Effective Teaching and Learning of AgriculturalScience, *Bichi Journal of Education and Planning* 1(1), 6-8.

Azikiwe, U. (2007) Language Teaching and Learning. Onitsha: African-First Pubs Ltd

Azubogu, N and Madu, C (2007).Use of computer and Internet technology among the teaching staff of Imo State University, Owerri. H-JOLIS: Heartland Journal of Library and Information Science, 1 (2): 38-49.

Babajide, J.F.T. and Bolaji, O.A. (2003).Perception of lecturers and pre-service teachers towards the use of communication media in teaching pure and applied sciences in related disciplines. Proceedings of Conference, Lagos: pp. 23 – 40.

Bagui, S. (1998).Reasons for increased learning using multimedia.*Journal of*

Bandura, A. (1977). Self efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84(2), 191-215.

Bandura, A. (1997). Self-efficacy: *The exercise of control*. New York: W.H. Freeman.

Bar-llan, J., Peritz, B.C. & Wolman,Y. (2003), A survey on the use of electronic databases and electronic journals accessed through the web by the academic staff of Israeli Universities. The Journal of Academic Librarianship, 29(6), 346-61.

Barwell, R., Bishop, K., Erduran, S., Halai, A., Iyamuremye, D., Nyabanyaba, T., … Uworwabayeho, A. (2007). *Implementing curriculum change: Literature reviews—South Africa, Rwanda, and Pakistan* (EdQual Working Paper No. 6). Retrieved from http://www.edqual.org/publications/ workingpaper/edqualwp6.pdf

Batterham, I. (2000). The chance to change: *The final report by the Chief Scientist*. Canberra: AGPS.

Benavides, O. E., & Surry, D. W., (1994). Train the trainer: A model for faculty development. In J. Willis, B. Robin, & D. Willis (Eds.), Technology and Teacher Education Annual 1994. (pp. 336-340). Charlottesville, VA: Association for the Advancement of Computing in Education.

Bennett, J. (2003). *Teaching and learning science*. New York, N.Y.: Continuum.

Berinstein, P (2003). *Business Statistics on the Web: Find Them Fast – At Little or No Cost*. New Jersey: Cyber Age Books,.

Berson, I. R. (2003a). Grooming cybervictims: The psychosocial effects of online exploitation for youth. Journal of School Violence, 2(1), 5-18.

Berson, I. R. (2003b, July). Making the connection between brain processing and cyber awareness: A developmental reality. Paper presented at the proceedings of Netsafe II, Society, Safety and the Internet Symposium, Auckland, New Zealand.

Berson, M. (1996). Effectiveness of computer technology in social studies: A review of the literature. Journal of Research on Computing in Education, 28(4), 486–499.

Beshnizen, M and Van Puthen (2000) The Use of Video-Tape Broadcast and Interactive Teaching, British Journal of Edu Tech 21(2) 40-44.

Blalock, C. L., Lichtenstein, M. J., Owen, S., Pruski, L., Marshall, C., & Toepperwein, M. (2008). In pursuit of validity: A comprehensive review of science attitude instruments 1935-2005. *International Journal of Science Education*, 30(7), 961-977.

Blažic, M. (2007).Obrazovna tehnologija. Vranje: Uciteljski fakultet u Vranju.

Borgh, K., & Dickson, W. P. (1992).The effects on children's writing of adding speech synthesis to a word processor. *Journal of Research on Computing in Education, 24*(4), 533-544.

Bosco, J. (1986). An analysis of evaluations of interactive video.*Educational Technology*, 25, 7-16.

Bottge, B. (1999). Effects of contextualized math instruction on problem solving of average and below-average achieving students.*Journal of Special Education*, *33*(2), 81-92.

Brozovic, D. (2000). Osmojezicni enciklopedijski rjecnik. Zagreb: Leksikografski zavod

Burden, A., & Byrd D. (2001).*Learning science in lower primary: Floating and sinking [video]*. Brisbane, Australia: Queensland University of Technology.

Butcher C., & Powell A. (2005). *Achieving scientific literacy: From purposes to practices*. Portsmouth, NH: Heinemann.

Bybee, R. W. (1997). *Achieving scientific literacy: From purposes to practices*. Portsmouth, NH: Heinemann.

Carlson, S. and C.T. Gadio. (2002). Teacher professional development in the use of technology. In W.D. Haddad and A. Draxler (Eds), Technologies for education: Potentials, parameters, and prospects. Paris and Washington, DC: UNESCO and the Academy for Educational Development. Retrieved 10 August 2011 from http://portal.unesco.org/ci/en/ev.php-URL_ID=22984&URL_DO=DO_ PRINT-PAGE&URL_SECTION=201.html

Carn-cross B., & Mansion, M. (2001).Teaching science in lower primary [CDROM]. Brisbane, Australia: Queensland University of Technology.

Ciardiello, A. (1998). Did you ask a good question today? Alternative cognitive and metacognitive strategies.*Journal of Adolescent & Adult Literacy*, 42, 210-219.

Collis, B. (n.d). *Anticipating the impact of multimedia in education: Lessons from the literature*. Retrieved from http://doc.utwen te.nl/26499/1/K26499__.PDF

Dania, C. M., & Enekrire, J. J. (2002).*Focus on learning science. [video*]. Brisbane, Australia: Queensland University of Technology.

Danjuma, A.M. and Muhammad, I. (2011) *Statistics in Educational Research* .Zaria: A.B.U Press Limited.

Dauda, A.D (2014). *Effects of Inquiry and Simulation Games Techniques on Academic Performances of JSS students in Kaduna State-Nigeria.* An Unpublished M.Ed. Thesis submitted to Post-graduate School, Ahmadu Bello University, Zaria.

Davies, A., willis, B., Fulton, s., & Austin Bottge, B. (1995). Effects of contextualized math instruction on problem solving of average and below-average achieving students.*Journal of Special Education, 33*(2), 81-92.

Davis, N., Willis, J., Fulton, K., & Austin, L. (1995). The current status of technology teacher education: An international comparison. In J. Willis, B. Robin, & D. Willis (Eds.), Technology and Teacher Education Annual 1995, (pp. 801-804). Charlottesville, VA: Association for the Advancement of Computing in Education.

Demodharan A., & Rengaranjan C. B. (2007). *Anticipating the impact of multimedia in education: Lessons from the literature*. Retrieved from http://doc.utwen te.nl/26499/1/K26499__.PDF

Diezmann, C. M., & Watters, J. J. (2001a).*Learning science in lower primary: Floating and sinking [video]*. Brisbane, Australia: Queensland University of Technology.

Diezmann, C. M., & Watters, J. J. (2001b).Teaching science in lower primary [CDROM]. Brisbane, Australia: Queensland University of Technology.

Diezmann, C. M., & Watters, J. J. (2002).*Focus on learning science. [video*]. Brisbane, Australia: Queensland University of Technology.

Doty, D. E., Popplewell, S. R., & Byers, G. O. (2001). Interactive CD-ROM storybooks and young readers' reading comprehension. *Journal of Research on Computing in Education, 33*(4), 374-384.

Eccles, L. (2007). *Gender differences in teacher-student interactions, attitudes and achievement in middle school science* (Doctoral dissertation, Science and Mathematics Education Centre, Curtin University of Technology).

Elbro, C., Rasmussen, I., & Spelling, B. (1996). Teaching reading to disabled readers with language disorders: A controlled evaluation of synthetic speech feedback. *Scandivian Journal of Psychology*, *37*, 140-155.

European Commission. (2007). *Science education now: A renewed pedagogy for the future of Europe.* Retrieved from http://ec.europa.eu/research/science-society/document_library/pdf_06/report-rocard-on-science-education_en.pdf

Feden, P.D. (1994). *About Instructing*: *Powerful New Strategies Worth Knowing.* Educational Horizon, 73(1):121-140.

Federal Government of Nigeria (2006).*Universal Basic Education Commission.*UBEC office of Executive Secretary. Abuja: Nigeria.

Federal Republic of Nigeria (2004).*National Policy on Education*. Lagos: NERDC, Government Press.

Federal Republic of Nigeria (2013).*National Policy on Education*. Lagos: NERDC, Government Press.

Fensham, P. J. (1994). Progression in school science curriculum: A rational prospect or a chimera? *Research in Science Education*, 24, 76-82.

Fenstermacher, G. D. (1986). Philosophy of research on teaching: Three aspects. In M. C. Wittrock (Ed.), *Handbook of Research on Teaching* (pp. 37-49). New York: Macmillan.

Fletcher, D. (1990). The effectiveness and cost of interactive videodisc instruction in defense training and education (IDA Paper P-2372). Alexandria, V.A.: *Institute for Defense Analyses.*

Fletcher, N., & Lowe, I. (1993). Science education: Contested Territory. EQ Australia, 1, 18-22.

Flinders, D. J., & Eisner, E. W. (1994). Educational criticism as a form of qualitative inquiry.*Research into the teaching of English*, 28(4), 341-361.

Forgo, S., & Koczka, F. (1996). The use of multimedia in distance education. Educational Media International, 33(1), 16-19.

Fraser, B. J. (1981). *TOSRA: Test of science-related attitudes handbook*. Victoria: The Australian Council for Educational Research Limited. Retrieved from: http://www.ecu.edu/ ncspacegrant/docs/RESTEPdocs /TOSRA_BJF_ paper. Pdf

Frey, Lawrence R., Carl H. Botan, and Gary L. Kreps.*Investigating Communication: An Introduction to Research Methods.* 2nd ed. Boston: Allyn and Bacon, 2000.

Fullan, M. (1991). The new meaning of educational change (rev. ed). New York: Teachers College Press.

Gagne, R. M. (1979). *The conditions of learning* (3rd ed.). New York, N.Y.: Holt Rinehart and Winston.

Gardner, P. L. (1975). Attitude to science: A review. *Studies in Science Education*, 2, 1-41.

Gattis K. W. (1998). Listening*: An overlooked teaching skill*? URL: http://www.ncsu.edu/sciencejunction/route/professional/listen.html [Accessed 20 May 2002]

Gay, L. R. (2009). *Educational research: Competencies for analysis and application* (5th ed.). Islamabad: National Book Foundation.

Gilakjani, A. P. (2012). The significant role of multimedia in motivating EFL learners' interest in English language learning. I.J.Modern *Education and Computer Science*, 4, 57-66. Retrieved from http://www.mecs-press.org/ijmecs/ijmecs-v4-n4 /IJMECS-V4-N4-8.pdf

Glaserfeld, E. V. (1995). *Radical constructivism: a way of knowing and learning*. Washington, DC: Falmer Press.

Glen, J. (Chair) (2000). Before it's too late: *A report to the nation from the National Commission on mathematics and science teaching for the 21st Century*. Washington, DC: Dept of Education [www.ed.gov/americacounts/glenn Accessed 17 March 2002].

Goldenberg, L. B., Heinze, J., & Ba, H. (2004). *What middle grade students say about learning science with multimedia.* Presented at the National Educational Computing Conference, New Orleans, LA.

Goodrum, D., Hackling, M., & Rennie, L. (2001).*The status and quality of teaching and learning of science in Australian schools.*Canberra: Department of Education, Training and Youth Affairs. http://www.detya.gov.au/schools/publications/ index.htm (Accessed 17 March 2002).

Grabe, M., & Grabe, C. (1998). Integrating technology into meaningful learning, (2nd ed.). Boston: Houghton Mifflin.

Guyette, S. (1983). *Community-Based Research: a Handbook for Native Americans*. California: American Indian Studies Center.

Hadden, R. A., & Johnstone, A. H. (1983). Secondary school pupils' attitudes to science: The year of decision. *International Journal of Science Education*, 5(4), 429-438.

Halai, A., Rizvi, N. F., & Rodrigues, S. (2007). *Mathematics and science education in Pakistan: A review. In Implementing curriculum change:* Literature reviews—South Africa, Rwanda, and Pakistan (EdQual Working Paper No. 6). Retrieved April 3, 2014, from http://www.edqual.org/publications/workingpaper/edqualwp6.pdf/at_download/file.pdf

Hendrickson, A. B. (1997). *Predicting student success with the learning and study strategies inventory (LASSI)* (Unpublished master's thesis, Iowa State University).

Heron, J. (1996). *Co-operative Inquiry: research into the human condition.* London: Sage. The latest comprehesive account of the co-operative inquiry method.Covers everything from philosophical underpinnings to the details of practice. Best read as a handbook dipping into the chapters that seem most helpful.

Heron, L. (1996). Knowledge workers or threatened species? A commentary. Australian Universities' Review, 39(1), 26-28.

Hesketh, B, Gosper, M, Andrews, J & Sabaz, M (1996). Computer-mediated communication in university teaching. EIP Program, Higher Education Division. Canberra: Government Printer.

Hostetler, D. (2001). Osmojezicni enciklopedijski rjecnik. Zagreb: Leksikografski zavod

Hough, L. W., & Piper, M. K. (1982).The relationship between attitude toward science and science achievement.*Journal of Research in Science Teaching*, 19(1), 33-38.

Hulley, S.B., Cummings, S.R. & Newman, T.B, (2007). Designing Cross-Sectional and Cohort Studies. Retrieved on 19 April2016from bookpromos.lww.com/wp content/.../Hulley9781608318049-ch007.pdf

Iqbal, H. M., & Mahmood, N. (2000). Teacher education in Pakistan: Policies and practices. In S. K. Abell (Ed.), *Science teacher education: An international perspective* (pp. 75-92).

Joyce, B. A., & Farenga, S. J. (2000). Young girls in science: Academic ability, perceptions, and future participation in science. *Roper Review*, 22(4), 261-262.

Junaidu, S. (2008). Effectiveness of multimedia in learning & teaching data structures online. *Turkish Online Journal of Distance Education*, 9(4), 97-107.

Kadiri, K. (2004). *Strategies and Techniques for Teaching Social Studies.* In Ololobou, Y.P.S (ed) *Social Studies for Effective Citizenship,* Kano: Zaria Collective.

Kaya, H., & Boyuk, R. (n.d).Attitude towards physics lessons and physical experiments of the high school students.*European Journal of Physics Education*, 2(1), 16-22.

Kearsley, G. (2002). *Explorationsin learning and instruction: The theory into practice database*. [URL http://tip.psychology.org/ Accessed 20 May 2002.]

Kelly, A. (1986). The development of girls' and boys' attitudes to science: A longitudinal study. International Journal of Science Education, 8(4), 399-412.

Khalili, A., & Shashaani, L. (1994). The effectiveness of computer applications: A meta-analysis. Journal of Research on Computing in Education, 27, 48-61.

Khan, M., Niaz, M., Ahmed, M., Saeed, F., & Khan, S. A. (2012).Impact of activity-based teaching on students' academic achievements in physics at secondary level.*Academic Research International*, 3(1), 146-156.

Kluwer: Kluwer Academic Publisher. Jarosievitz, B. (n.d). ICT in physics teaching for secondary schools and colleges. Retrieved from http://www.pixel-online.net/ science/common/download/Paper_ pdf/28-ESM01-FP-Jarosievitz-NPSE2012.pdf

Kogan P. & Rana, R. A. (2002). Effect of parents, socioeconomic status, students, self-concept and gender on science-related attitudes and achievement (Doctoral dissertation, University of the Punjab).

Kozma, R. (1991). Learning with media. Review of Educational Research, 61(2), 179-212. Larkin, J. H., & Simon, H. (1987). Why a diagram is (sometimes) worth ten thousand words. Cognitive Science, 11, 65- 100.

Kulik, C. C., Kulik, J. A., & Shwalb, B. J. (1986). The effectiveness of computer based adult education: A meta-analysis. Journal of Educational Computing Research, 2, 235-252.

Kulik, J. A., Kulik, C. C., & Cohen, P. A. (1979). A recta-analysis of outcome studies of Keller's personalized system of instruction. American Psychologist, 34, 307-318.

Kulik, J.A., Bangert-Downs, R.L., & Williams, G.W. (1983).Effects of computer-based teaching on secondary school students. Journal of Educational Psychology, 75, 19-26

Kyriacou, C. (1995). *Effective Teaching in School.*Cheltenham: Stanley Thornes.

Laurillard, D. (1999). Using communications and information technology effectively. In W. J. McKeachie (Ed.), McKeachie's teaching tips: Strategies, research, and theory for college and university teachers (10th ed.) (pp. 183- 200). Boston: Houghton Mifflin.

Lavric, A. (1999). Raziskava o uporabi multimedijskih racunalniških programov. Sodobna

Lavrnja, I. (1998). Poglavlja iz didaktike. Rijeka: Sveucilište u Rijeci.

Lawal, M. B. & Oyeleye, A.S. (2003) *Foundations and Principles of Social Studies Education* Lagos: A Triad Associates

Lee, Y., & Keckley, K. (2006). Effects of a teacher-made multimedia program on teaching driver education: A case study. Teaching Exceptional Children Plus, 2(5), 5.

Linn, M. C. (1992). Science education reform: Building the research base. *Journal of Research in Science Teaching,* 29, 821-840.

Lohr, S. L. (1999) Sampling: *Design and Analysis*. Albany: Duxbury Press.

Lowenfeld, V. and Brittan, W.L. (1987).Creative and Mental Growth (5th Ed). London: Macmillan

Lyons, V. J., & Carlson, R. D. (1995). Technology in teacher education - Faculty attitude, knowledge and use. In J. Willis, B. Robin & D. Willis. (Eds.), Technology and Teacher Education Annual 1995. (pp. 753-757). Charlottesville, VA: Association for the Advancement of Computing in Education.

Mabula, N. (2012). Promoting science subjects choices for secondary school students in Tanzania: Challenges and opportunities. *Academic Research International*, 3(3).

MacArthur, C. A., & Haynes, J. B. (1995). Student assistant for learning from text (SALT): A hypermedia reading aid. *Journal of Learning Disabilities*, *28*, 150-159.

MacArthur, C. A., Ferretti, R. P., Okolo, C. M., & Cavalier, A. R. (2001). Technology applications for students with literacy problems: A critical review. *The Elementary School Journal*, *101*(3), 273-301.

Maduewesi, (1990).*General Methodology for Primary School*. Ibadan, Nigeria: African FEB Publisher.

Mahoney, M.J. (2004). *What is Constructivism and Why it is Growing?* Contemporary Psychol. 49:360-363.

Mantei, E. J. (2000). Using Internet class notes and PowerPoint in the physical geology lecture.*Journal of College Science Teaching,* 29, 301-305.

Massy, W. F., & Zemsky, R. (1995) Using information technology to Enhance Academic Productivity. Washington: Educom.

Matijevic, M. (2000).Hipermedijska obrazovna tehnologija u osnovnoj školi. U: Nastavnik i

Matijevic, M. (2001). Internet, multimedij i obrazovanje na daljinu. U: Klapan, A., Pongrac

May, T. (2003).*Social research, issues, methods and process* (2nd ed.). Buckingham: Open University.

Mayer, R. E. (1997). Multimedia learning: Are we asking the right questions? *Educational Psychologist*, 32(1), 1-19.

Mayer, R. E. (2005). The Cambridge handbook of Multimedia Learning. New York:

Mayer, R. E. (2005a). Cognitive theory of multimedia learning.In R. Mayer (Ed.), Cambridge *handbook of multimedia learning* (pp. 31-48). New York, N.Y.: Cambridge University Press.

Mayer, R. E. (2005b). Principles for managing essential processing multimedia learning: Segmenting, pre training, and modality principles. In R. E. Mayer (Ed.), Cambridge *handbook of multimedia learning* (pp. 169-182). New York: Cambridge University Press.

Mayer, R. E. (2005c). *Introduction to multimedia learning*.In R. Mayer (Ed.), Cambridge handbook of multimedia learning (pp. 1-16). New York, N.Y.: Cambridge University Press.

Mayer, R. E. (2007). Multimedia Learning. New York: Cambridge University Press.

Memon, G. R. (2007). Education in Pakistan: The key issues, problems and the new challenges. *Journal of Management and Social Sciences*, 3(1), 47-55.

Mezieobi, K,E, Fubara, V.R. and Mezieobi S.A, (2008). Social *Studies in Nigeria: Teaching Methods Instructional Materials and Resources.* Owerri: AcadaPeak.

Mezieobi, K.A. (1993). *Teaching values in Social Studies: A contradiction Of conceived and operative values in Nigeria.* Nigerian Journal of Social Studies Review 2(1),

Mezieobi, K.A. (1994). Social Studies Education and Nation Building.Onitsha: Outrite publishers.

Moore-Hart, M. A. (1995). The effects of multicultural links on reading and writing performance and cultural awareness of fourth and fifth graders. *Computers in Human Behavior*, *11*(3-4), 391-410.

National Council for the Social Studies (1994).*Expectations of excellence: Curriculum standards for social studies.* Washington, DC: National Council for the Social Studies.

National Science Board, (1999).Preparing our children: math and science education in the national interest. Washington, DC: Author.

National Teacher Institute (2006) Improvisation of Instructional Materials, Manual, Kaduna, NTI.

Neo, M. and Neo, T.K. (2000). Multimedia learning: using multimedia as a platform for instruction and learning in higher education. Paper presented at the Multimedia University International Symposium on Information and Communication Technologies 2000 (M2USIC'2000), October 5-6, 2000, Petaling Jaya, Malaysia.

Neo, M., & Neo, T. K. (2001). Innovative teaching: Using multimedia in a problem-based learning environment. Educational Technology & Society, 4(4), 19-31.

Nieswandt, M. (2005). Attitudes toward science: A review of the field. In S. Alsop (Ed.), Beyond Cartesian dualism encountering affect in the teaching and learning ofscience (pp. 41-52). Dordrecht, Netherlands: Springer.

NTI (2000) *Pivotal Teachers' Training Programmed:* Course book on Social Studies. Kaduna: NTI

OECD (2001).*Learning to change: ICT in schools*, Paris: OECD.

OECD. (1996). *Education and training: Learning and working in society in flux*. Paris.

Ogundare, S, F. (2000) *Foundations of Social Studies.*Ibadan: Adesesan Press.

Ogundare, S.F. (2000). *Foundations of Social Studies: A Handbook of*

Ogunlele, W. (1993). Strategies for teaching physics for learning' gain in the senior secondary school: A guide to teachers. Journal *of Science Teachers Association of Nigeria*, 28(1&2), 151-156.

Ogunleye, A. O. (1999). *Science education in Nigeria*. Lagos: Sunshine International Publications Nigeria Limited.

Ogunsanya, M. (1984) *Introduction to Methodologies of Social Studies* Ibadan: University Press.

Okam, C.C and Nedoso, P.S (n.d).*A survey of the place of instructional materials and resources amongst social studies teachers in Plateau state*: The quest for effectiveness sin classroom pedagogy.

Okonkwo, M.E. (2004). Citizenship Education and social studies Education. The Problem of producing effective citizens in Nigeria, through social studies education: some major issues involved and prospects for improvement and advancement, paper presented at SOSAN Conference, Abeokuta.

Okoye, K.R.E & Okwelle, p.c. (2013).Technical and Vocational Education and Training (TVET) In Nigeria and Energy Development, Marketing and National Transformation. *Journal of Education and Practice*www.iiste.org Vol.4, No.14, 2013134.

Olayiwola, A.O. (2007). *Procedures in Education Research,* Kaduna: Hanijam publications.

Oliver, J. S., & Simpson, R. D. (1988). Influences of attitude toward science, achievement, motivation, and science self concept on achievement in science: A longitudinal study. *Science Education*, 72(2), 143-155.

Ololobou, C.O. (2010), *Methodological Approaches in Social Studies Education.* Kano: Jaleyemi General enterprises.

Omooba, B.T., Obi, G.E. and Olabode J.A. (2008) *Topical Issues on Contemporary Social Studies Education*. Zaria: Nasif Prints and Enterprises.

Ormerod, M. B., & Duckworth, D. (1975).Pupils' attitudes to science. Windsor: NFER.

Osborne, J., & Simon, S. (1996). Primary science: past and future directions. *Studies in Science Education*, 26, 99-147.

Osborne, J., Simon, S., & Collins, S. (2003). Attitude towards science: A review of the literature and its implications. *International Journal of Science Education,* 25(9), 1049-1079.

Paivio, A. (1986). *Mentalrepresentations:Adualcodingapproach*. New York: Oxford University

Papanastasiou, E. C., & Zembylas, M. (2004). The effect of attitudes on science achievement: A study conducted among high school pupils in Cyprus. *International Review of Education*, 48(6), 469-484.

Parker, V., & Gerber, B. (2000). Effects of science intervention program on middle-grade student achievement and attitudes. *School Science and Mathematics*, 100(5), 236-242.

Phillips, R. (1997). *The developers' handbook to interactive multimedia: A practical guide for educational applications.* London:

Ramsden, P., & Martin, E. (1996). Recognition of good teaching: Policies from an Australian study. Studies in Higher Education, 21(3), 299-315.

Rani, G. (2000). Measuring change in students attitude towards science over time: An application of latent variable growth modeling. *Journal of Science Education and Technology*, 9(3), 213-225.

Rehman, H., & Khan, N. (2011).Flaws in Pakistan's educational system.Abasyn University *Journal of Social Sciences*, 4(1).

Reisman, S. (1994). Multimedia computing: preparing for the 21st century. Harrisburg: IDEA Group Publishing.

Riding, R., & Grimley, M. (1999). Cognitive style and learning from multimedia materials in 11-year children. *British Journal of Educational Technology*, 30(1), 43-59.

Robinson, B., & Latchem, C. (2003). Teacher education: challenges and change. In B. Robinson, & C. Latchem (Eds.), Teacher education through open and distance learning, London: RoutledgeFalmer, 1-27.

Rolfe, E. V., & Gray, D. (2011). Are multimedia resources effective in life science education? A meta-analysis.*Bioscience Education, 18(3).* Retrieved from http://www.bioscience.heacademy.ac.uk/journal/vol18/beej-18-3.pdf

Rose, D. H., & Meyer, A. (2002). *Teaching every student in the digital age: Universal Design for Learning*. Alexandria, VA: Association for Supervision and Curriculum Development (ASCD).

Rosink, B. (2012). Drawing based modeling and simulating in primary school science education. Retrieved from http://essay.utwente.nl/62455/1/Rosink,_B.E._-_s1116118 _%28verslag%29.pdf

Salihu, J. J. & Adamu, S. (2016). A survey on social studies teachers' opinions on factors inhibiting Successful Implementation of Millennium Development Goals in Nigeria. In Ebohon, O. J., Ayeni, D. A, Egbu, C. O, and Omole, F. K. *Procs. of the Joint International Conference (JIC)* on 21st Century Human Habitat: Issues, Sustainability and Development, 21-24 March 2016, Akure, Nigeria, page number 1469-1475

Salihu, J. J. & Adamu, S. (2016). A Survey on Social Studies Teachers' Opinion on Factors Inhibiting Successful Implementation of Millennium Development Goals in Nigeria. In Ebohon, O. J., Ayeni, D. A, Egbu, C. O, and Omole, F. K. Procs. of the Joint International Conference (JIC) on 21st Century Human Habitat: Issues, Sustainability and Development, 21-24 March 2016, Akure, Nigeria, page number 1469-1475.

Salihu, J.J., Abdullahi, M.B, Alfa, M.G & Muhammed, A. (2016*).Evaluation on the Effects of Interactive Multimedia Instruction on Academic Performance of Upper Basic Level Students in Kaduna State-Nigeria.*A paper presented at the 3rd International Conference on Enhancing Information Management, Science and Technology Education through Interactive Multimedia and Hypermedia Instruction"organised by School of Science and Technology Education, Federal University of Technology, Minna-Niger state, Nigeria Date: Wednesday 4th- 7th October, 2015.

Salim, S. (2010).*Pakistanigrade ten students' conceptions of nature of science* (Unpublished master's thesis, Aga Khan University).

Salta, K., & Tzougraki, C. (2004). Attitudes toward chemistry among 11th grade students in high schools in Greece. *Science Education*, 88, 535-547.

Schibeci, R. A., & Riley, J. P. (1986). Influence of students' background and perceptions on science attitudes and achievement. *Journal of Research in Science Teaching*, 23(3), 177-187.

Schmidt, M., Weinstein, T., Niemiec, R., & Walberg, J. (1985). Computer assisted instruction with exceptional children. *Journal of Special Education,* 19, 497-509.

Schulman, L. S. (1986). Those who understand: Knowledge growth in teaching. *Educational Researcher*, 15(2), 4-14.

Schunk, D., & Hanson, A. (1985). Peer models: Influence on children's self-efficacy and achievement. *Journal of Educational Psychology*, 77(3), 313-315.

Schwartz, J.E., & Beichner, R.J. (1999). *Essentials of educational technology*. Boston: Allyn and Bacon.

Shah, Z. A., Iqbal, Z., & Rauf, M. (2010).Effect of problem solving teaching strategy on 8th grade students' attitude towards science.*Journalof Education and Practice*, 1(3), 16-27. Retrieved from http://www.iiste.org/Journals/index.php/JEP/ article /viewFile/ 1658/1620

Shah, Z. A., Mahmood, N., & Harrison, C. (2013). Attitude towards science learning: An exploration of Pakistani students. *Journal of Turkish Science Education*, 10(2), 35-47.

Sheffield, S. R. (1996). Interactive CD-ROM storybooks and young readers' reading comprehension. *Journal of Research on Computing in Education*, *33*(4), 374-384.

Sierra-Fernandez, J. L., & Perales-Palacios, F. J. (2003).The effect of instruction with computer simulation as a research tool on open-ended problem-solving in a Spanish classroom of 16-year-olds. *Journal of Computers in Mathematics and Science Teaching*, *22*(2), 119-140.

Singh, V. K. (2003). *Does multimedia really improve learning effectiveness? Paper presented at The Asia Pacific Conference on Education: Re-envisioning Education: Innovation and Diversity.* Retrieved from http://www.youblisher.com/p/34202- Multimedia-in-Education-1

Soomro, A. Q., Qaisrani, M. N., & Uqaili, M. A. (2011).Measuring students' attitudes towards learning physics: Experimental research.*Australian Journal of Basic and Applied Sciences*, 5(11), 2282-2288.

Spotts, T. H., & Bowman, M. A. (1995). Faculty use of instructional technologies in higher education. Educational Technology, March-April, 56-64.

Stemler, L. K. (1997). Educational characteristics of multimedia: A literature review. *Journal of Educational and Hypermedia*, 6(3/4), 339-359.

Stohl, H., & Tarr, J. E. (2002).Developing notions of inference using probability simulation tools. *Journal of Mathematical Behavior*, *21*(3), 319-337.

suvremena obrazovna tehnologija. Rijeka: Filozofski fakultet u Rijeci, str. 33-39.

Szabo, A., & Hastings, N. (2000). Using IT in the undergraduate classroom: Should we replace the blackboard with PowerPoint? *Computers and Education*, 35, 175-187.

Tanko, Y. I. (2015).*Effects of Inquiry Teaching Method on Academic Performance of JSS students in Kaduna Central Inspectorate Division.* An Unpublished M.Ed. Thesis submitted to Post-graduate School, Ahmadu Bello University, Zaria

Tierney, R. J., Kieffer, R., Whalin, K., Desai, L., Moss, A. G., Harris, J. E., et al. (1997). Assessing the impact of hypertext on learners' architecture of literacy learning spaces in different disciplines: follow-up studies. *Reading Online* (1096-1232). Retrieved from the World Wide Web: http://www.readingonline.org/research/impact.

Trushell, J., & Maitland, A. (2005). Primary pupils' recall of interactive storybooks on CD-ROM: Inconsiderate interactive features and forgetting. *British Journal of Educational Technology*, *36*(1), 57-66.

Tytler, R. (2010). Re-*imagining science education: Engaging students in science for Australia*. Retrieved April 2, 2014, from http://research.edu.aer.edu.au.aer/3

Usun, S. (2003).Educational uses of internet in the World and Turkey; A comparative review. Turkish online Journal of Distance Education. 4(3). Retrieved July 27, 2004, from http://tojde.anadolu.edu.tr/

Van den Berg, S., & Watt, J.H. (1991).Effects of educational setting on student responses to structures hypertext. Journal of Computer-Based Instruction, 4(18), 118-124.

Walberg, H. J. (1984). Improving the productivity of American schools.*Educational Leadership*, 41, 19-27.

Wang, Y., Peng, H., Huang, R., Hou, Y., & Wang, J. (2008). Characteristics of distance learners: Research on relationships of learning motivation, learning strategy, self-efficacy, attribution and learning results. *The Journal of Open and Distance Learning*, *23*(1), 17-28.

Warschauer, M. (1999).*Electronic literacies: Language, culture, and power in online education.* Mahwah, NJ: Lawrence Erlbaum Associates.

Watters, J. J. & Diezmann, C. M. (2001a).*Learning science in upper primary: Finding out about the past [Video]*. Brisbane, Australia: Queensland University of Technology.

Watters, J. J. & Diezmann, C. M. (2001b).Teaching science in upper primary [CDROM]. Brisbane, Australia: Queensland University of Technology.

Watters, J. J., & Diezmann, C. M. (2002).Teaching science in the primary years. http://www.fed.qut.edu.au/science/ (Accessed 23 May 2002)

Weinburgh, M. (1995). Gender differences in student attitudes toward science: A meta-analysis of literature from 1970 to 1991. *Journalof Research in Science Teachin*g, 32(4), 387-398.

Whatley J, Ahmad A. Using video to record summary lectures to aid students' revision. Interdisciplinary Journal of E-Learning and Learning Objects. 2007;3(1):185–96.

White, C. (1999). It's not just another new thing: Technology as a transformative innovation for social studies teacher education. Journal of Technology and Teacher Education, 7(1), 3–12.

Whitworth, S., & Berson, J. M. (2003). Computer technology in the social studies: an examination of the effectiveness literature 1996-2001. Contemporary Issues in

Willis, J. (1995). Recursive, reflective instructional design model based on constructivist-interpretist theory. Educational Technology, 35 (6), 5-23.

Willis, J., Willis, D. A., Austin, L., & Colon, B. (1995). Faculty perspectives on instructional technology: A national survey. In J. Willis, B. Robin, & D. Willis. (Eds.). Technology and Teacher Education Annual 1995, (pp. 795- 800). Charlottesville, VA: Association for the Advancement of Computing in Education.

Wilson, B. G. (Ed.). (1996). Constructivist learning environments: Case studies instructional design. Englewood Cliffs, NJ: *Educational Technology Publication*.

Wilson, V. L. (1983). A meta-analysis of the relationship between science achievement and science attitude kindergarten through college.*Journal of Research in Science Teaching*, 20(9), 839-850.

Wiseman, D.C. (1999). *Research Strategies for Education*: Wadsworth publishing company.

Wolf, D. (2009). *Science multimedia presentations' effects on female students' achievement and attitudes toward science.* Retrieved from http://people.wku.edu/barbara.fiehn/AASL/Females%20attitudes%20towards%20science%20multimedia% 20presentations.pdf

Woodward, J., Carnine, D., & Gersten, R. A. O. (1988).Teaching problem solving through computer simulation. *American Educational Research Journal*, *25*(1), 72-86.

Xin, F., Glaser, W. G., & Rieth, H (1996). Multimedia reading using anchored instruction an video technology in vocabulary lessons. Teaching Exceptional Children, 28(6), 45-49.

Xin, J. F., Glaser, C. W., & Rieth, H. (1996). Multimedia reading using anchored instruction and video technology in vocabulary lessons. *Teaching Exceptional Children*, *Nov/Dec*, 45-49.

Yamah, I.K. (2009). *Theories of Development*. Zaria: Esonja Enterprise.

Zao, Y. (2003). The Use of Constructivist Teaching Model in Environmental Science at Beijing Normal University, China Papers, 78-83.

**APPENDIX A**

Department of Arts and Social Science Education, Faculty of Education, Ahmadu Bello University, Zaria-Nigeria

Date ----------

Dear Respondent,

The researcher is a Ph.D Student of the above named Institution carrying out a research work on the "Evaluation of Availability, Organization and Utilization of Multimedia Resources for Teaching Social Studies in Colleges of Education in North-Central Nigeria.The questionnaire items are designed to elicit

the right type of response based on your own objective opinion. The reliability of the study depends on your sincerity and solemn judgment.

Thanking in anticipation for your favourable response.

Yours faithfully,

Aminu MUHAMMED
P15EDAS9013

**APPENDIX B**

**AVAILABILITY, ORGANIZATION AND UTILIZATION OF MULTIMEDIA RESOURCES QUESTIONNAIRE (AOUMREQ)**

| 1a. | **GENDER: Male ( ) Female ( )** | **1b** | **COLLEGE OWNERSHIP: Federal [ ] State [ ]** |
|---|---|---|---|

*The following are lists of multimedia resources for teaching Social Studies. Using a scale of 1-4 where 4= Fully* Available (FA), 3= Partially Available (PA), 2= Uncertain (UC) & 4- Not Available (NA) *indicate by ticking the appropriate column below.*

| S/N | AVAILABILITY OF MULTIMEDIA RESOURCES | FA | PA | UC | NA |
|---|---|---|---|---|---|
| 1 | Visual Presenters/Document Cameras | | | | |
| 2 | Digital photos, maps, and schematic drawings | | | | |
| 3 | Video/videodiscs | | | | |
| 4 | Hypermedia databases | | | | |
| 5 | Printed photos, maps, and schematic drawing | | | | |
| 6 | Audio and video digitizers | | | | |
| 7 | The World Wide Web | | | | |
| 8 | Digital still/video camera | | | | |
| 9 | Digital video and still image cameras | | | | |
| 10 | Electronic chalkboards (Smart Boards) | | | | |
| 11 | Hypermedia texts | | | | |
| 12 | Digital texts | | | | |

| | | | | | |
|---|---|---|---|---|---|
| 13 | Web-based texts | | | | |
| 14 | CDROM/DVD dictionaries and encyclopedias | | | | |
| 15 | Transparency | | | | |
| 16 | Digital cameras | | | | |
| 17 | Scanners/digitizers | | | | |
| 18 | Digital (Web- and CD-based) video | | | | |
| 19 | Interactive (Web- and CD-based) simulation | | | | |
| 20 | Digital reading environments | | | | |
| 21 | Projector | | | | |
| 22 | Television | | | | |
| 23 | Computer | | | | |
| 24 | Graphics | | | | |
| 25 | Digital audio (Web- and CD-based) | | | | |

*The following are lists of multimedia resources for teaching Social Studies. Using a scale of 1-4 where 4=* Effectively Organised (EO), 3= Fairly Organised (FO), 3= Poorly Organised (PO) & 4= Unorganised (UO) *indicate your responses by ticking the appropriate column below*

| **ORGANIZATION OF MULTIMEDIA RESOURCES** | | **EO** | **FO** | **PO** | **UO** |
|---|---|---|---|---|---|
| 1 | Visual Presenters/Document Cameras | | | | |
| 2 | Digital photos, maps, and schematic drawings | | | | |
| 3 | Video/videodiscs | | | | |
| 4 | Hypermedia databases | | | | |
| 5 | Printed photos, maps, and schematic drawing | | | | |
| 6 | Audio and video digitizers | | | | |
| 7 | The World Wide Web | | | | |
| 8 | Digital still/video camera | | | | |
| 9 | Digital video and still image cameras | | | | |
| 10 | Electronic chalkboards (Smart Boards) | | | | |
| 11 | Hypermedia texts | | | | |
| 12 | Digital texts | | | | |
| 13 | Web-based texts | | | | |
| 14 | CDROM/DVD dictionaries and encyclopedias | | | | |

| | | | | | |
|---|---|---|---|---|---|
| 15 | Transparency | | | | |
| 16 | Digital cameras | | | | |
| 17 | Scanners/digitizers | | | | |
| 18 | Digital (Web- and CD-based) video | | | | |
| 19 | Interactive (Web- and CD-based) simulation | | | | |
| 20 | Digital reading environments | | | | |
| 21 | Projector | | | | |
| 22 | Television | | | | |
| 23 | Computer | | | | |
| 24 | Graphics | | | | |
| 25 | Digital audio (Web- and CD-based) | | | | |

*The following are lists of multimedia resources for teaching Social Studies. Using a scale of 1-4 where 4=* (Effectively Utilized (EU), 3= Fairly Utilized (FU), 2= Poorly Utilized (PU) & 1= Not Utilized (NU) *indicate your responses by ticking the appropriate column below*

| **UTILIZATION OF MULTIMEDIA RESOURCES** | | **EU** | **FU** | **PU** | **NU** |
|---|---|---|---|---|---|
| 1 | Visual Presenters/Document Cameras | | | | |
| 2. | Digital photos, maps, and schematic drawings | | | | |
| 3. | Video/videodiscs | | | | |
| 4. | Hypermedia databases | | | | |
| 5. | Printed photos, maps, and schematic drawing | | | | |
| 6. | Audio and video digitizers | | | | |
| 7. | The World Wide Web | | | | |
| 8. | Digital still/video camera | | | | |
| 9 | Digital video and still image cameras | | | | |
| 10 | Electronic chalkboards (Smart Boards) | | | | |
| 11 | Hypermedia texts | | | | |
| 12 | Digital texts | | | | |
| 13 | Web-based texts | | | | |
| 14 | CDROM/DVD dictionaries and encyclopedias | | | | |
| 15 | Transparency | | | | |
| 16 | Digital cameras | | | | |

| | | | | | |
|---|---|---|---|---|---|
| 17 | Scanners/digitizers | | | | |
| 18 | Digital (Web- and CD-based) video | | | | |
| 19 | Interactive (Web- and CD-based) simulation | | | | |
| 20 | Digital reading environments | | | | |
| 21 | Projector | | | | |
| 22 | Television | | | | |
| 23 | Computer | | | | |
| 24 | Graphics | | | | |
| 25 | Digital audio (Web- and CD-based) | | | | |

**APPENDIX C**

**APPENDIX D**

**AVAILABILITY OF MULTIMEDIA RESOURCES**

## Reliability

## Scale: ALL VARIABLES

**Case Processing Summary**

| | | N | % |
|---|---|---|---|
| Cases | Valid | 30 | 100.0 |
| | Excluded[a] | 0 | .0 |
| | Total | 30 | 100.0 |

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

**Reliability Statistics**

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|---|---|---|
| .758 | .766 | 25 |

**Item Statistics**

| | Mean | Std. Deviation | N |
|---|---|---|---|
| Visual Presenters/Document Cameras | 2.6250 | 1.21291 | 30 |
| Digital photos, maps, and schematic drawings | 3.2250 | 1.36790 | 30 |
| Video/videodiscs | 3.3500 | 1.12204 | 30 |
| Hypermedia databases | 3.1500 | 1.36907 | 30 |
| Printed photos, maps, and schematic drawing | 3.3750 | 1.53067 | 30 |
| Audio and video digitizers | 2.6750 | 1.24833 | 30 |
| The World Wide Web | 3.2500 | 1.27601 | 30 |

| | | | |
|---|---|---|---|
| Digital still/video camera | 3.1000 | 1.21529 | 30 |
| Digital video and still image cameras | 3.1250 | 1.39940 | 30 |
| Electronic chalkboards (Smart Boards) | 3.4000 | 1.59808 | 30 |
| Hypermedia texts | 2.4750 | 1.15442 | 30 |
| Digital texts | 3.2250 | 1.36790 | 30 |
| Web-based texts | 3.3500 | 1.12204 | 30 |
| CDROM/DVD dictionaries and encyclopedias | 3.1500 | 1.36907 | 30 |
| Transparency | 3.3750 | 1.53067 | 30 |
| Digital cameras | 2.6750 | 1.24833 | 30 |
| Scanners/digitizers | 3.2500 | 1.27601 | 30 |
| Digital (Web- and CD-based) video | 3.1000 | 1.21529 | 30 |
| Interactive (Web- and CD-based) simulation | 3.1250 | 1.39940 | 30 |
| Digital reading environments | 3.4000 | 1.59808 | 30 |
| Projector | 2.6750 | 1.24833 | 30 |
| Television | 3.2500 | 1.27601 | 30 |
| Computer | 3.1000 | 1.21529 | 30 |
| Graphics | 3.1250 | 1.39940 | 30 |
| Digital audio (Web- and CD-based) | 3.4000 | 1.59808 | 30 |

**Summary Item Statistics**

| | Mean | Minimum | Maximum | Range | Maximum / Minimum | Variance | N of Items |
|---|---|---|---|---|---|---|---|
| Item Means | 3.128 | 2.625 | 3.400 | .775 | 1.295 | .074 | 25 |

**ORGANIZATION OF MULTIMEDIA RESOURCES**

## Reliability

## Scale: ALL VARIABLES

**Case Processing Summary**

| | | N | % |
|---|---|---|---|
| Cases | Valid | 30 | 100.0 |
| | Excluded[a] | 0 | .0 |
| | Total | 30 | 100.0 |

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

**Reliability Statistics**

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|---|---|---|
| .745 | .753 | 25 |

**Item Statistics**

| | Mean | Std. Deviation | N |
|---|---|---|---|
| Visual Presenters/Document Cameras | 2.4750 | 1.15442 | 30 |
| Digital photos, maps, and schematic drawings | 3.2250 | 1.36790 | 30 |
| Video/videodiscs | 3.3500 | 1.12204 | 30 |
| Hypermedia databases | 3.1500 | 1.36907 | 30 |
| Printed photos, maps, and schematic drawing | 3.3750 | 1.53067 | 30 |
| Audio and video digitizers | 2.6750 | 1.24833 | 30 |
| The World Wide Web | 3.2500 | 1.27601 | 30 |
| Digital still/video camera | 3.1000 | 1.21529 | 30 |
| Digital video and still image cameras | 3.1250 | 1.39940 | 30 |

| | | | |
|---|---|---|---|
| Electronic chalkboards (Smart Boards) | 3.4000 | 1.59808 | 30 |
| Hypermedia texts | 2.4750 | 1.15442 | 30 |
| Digital texts | 3.2250 | 1.36790 | 30 |
| Web-based texts | 3.3500 | 1.12204 | 30 |
| CDROM/DVD dictionaries and encyclopedias | 3.1500 | 1.36907 | 30 |
| Transparency | 3.3750 | 1.53067 | 30 |
| Digital cameras | 2.6750 | 1.24833 | 30 |
| Scanners/digitizers | 3.2500 | 1.27601 | 30 |
| Digital (Web- and CD-based) video | 3.1000 | 1.21529 | 30 |
| Interactive (Web- and CD-based) simulation | 3.1250 | 1.39940 | 30 |
| Digital reading environments | 3.4000 | 1.59808 | 30 |
| Projector | 2.6750 | 1.24833 | 30 |
| Television | 3.2500 | 1.27601 | 30 |
| Computer | 3.1000 | 1.21529 | 30 |
| Graphics | 3.1250 | 1.39940 | 30 |
| Digital audio (Web- and CD-based) | 3.4000 | 1.59808 | 30 |

**Summary Item Statistics**

| | Mean | Minimum | Maximum | Range | Maximum / Minimum | Variance | N of Items |
|---|---|---|---|---|---|---|---|
| Item Means | 3.113 | 2.475 | 3.400 | .925 | 1.374 | .093 | 25 |

**UTILIZATION OF MULTIMEDIA RESOURCES**

## Reliability

## Scale: ALL VARIABLES

**Case Processing Summary**

| | | N | % |
|---|---|---|---|
| Cases | Valid | 30 | 100.0 |
| | Excluded[a] | 0 | .0 |
| | Total | 30 | 100.0 |

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

**Reliability Statistics**

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|---|---|---|
| .745 | .753 | 25 |

**Item Statistics**

| | Mean | Std. Deviation | N |
|---|---|---|---|
| Visual Presenters/Document Cameras | 2.6750 | 1.24833 | 30 |
| Digital photos, maps, and schematic drawings | 3.2500 | 1.27601 | 30 |
| Video/videodiscs | 3.1000 | 1.21529 | 30 |
| Hypermedia databases | 3.1250 | 1.39940 | 30 |
| Printed photos, maps, and schematic drawing | 3.4000 | 1.59808 | 30 |
| Audio and video digitizers | 2.6750 | 1.24833 | 30 |
| The World Wide Web | 3.2500 | 1.27601 | 30 |

| | | | |
|---|---|---|---|
| Digital still/video camera | 3.1000 | 1.21529 | 30 |
| Digital video and still image cameras | 3.1250 | 1.39940 | 30 |
| Electronic chalkboards (Smart Boards) | 3.4000 | 1.59808 | 30 |
| Hypermedia texts | 2.6750 | 1.24833 | 30 |
| Digital texts | 3.2500 | 1.27601 | 30 |
| Web-based texts | 3.1000 | 1.21529 | 30 |
| CDROM/DVD dictionaries and encyclopedias | 3.1500 | 1.36907 | 30 |
| Transparency | 3.3750 | 1.53067 | 30 |
| Digital cameras | 2.6750 | 1.24833 | 30 |
| Scanners/digitizers | 3.2500 | 1.27601 | 30 |
| Digital (Web- and CD-based) video | 3.1000 | 1.21529 | 30 |
| Interactive (Web- and CD-based) simulation | 3.1250 | 1.39940 | 30 |
| Digital reading environments | 3.4000 | 1.59808 | 30 |
| Projector | 2.6750 | 1.24833 | 30 |
| Television | 3.2500 | 1.27601 | 30 |
| Computer | 3.1000 | 1.21529 | 30 |
| Graphics | 3.1250 | 1.39940 | 30 |
| Digital audio (Web- and CD-based) | 3.4000 | 1.59808 | 30 |

**Summary Item Statistics**

| | Mean | Minimum | Maximum | Range | Maximum / Minimum | Variance | N of Items |
|---|---|---|---|---|---|---|---|
| Item Means | 3.113 | 2.475 | 3.400 | .925 | 1.374 | .093 | 25 |

## APPENDIX E

## Frequency Table

**Gender**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | male | 95 | 78.5 | 78.5 | 78.5 |
| | female | 26 | 21.5 | 21.5 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**college ownership**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Federal | 55 | 45.5 | 45.5 | 45.5 |
| | state | 66 | 54.5 | 54.5 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

```
T-TEST GROUPS=gender(1 2)
  /MISSING=ANALYSIS
  /VARIABLES=Availability_of_Multimedia_resources1
  /CRITERIA=CI(.95).
```

**Table 1**
**Frequencies**

## Frequency Table

**visual preenter/document cameras**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | NA | 36 | 29.8 | 29.8 | 29.8 |
| | UC | 15 | 12.4 | 12.4 | 42.1 |
| | PA | 38 | 31.4 | 31.4 | 73.6 |
| | FA | 32 | 26.4 | 26.4 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**digital photos maps and shematic drawings**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | NA | 3 | 2.5 | 2.5 | 2.5 |
| | UC | 5 | 4.1 | 4.1 | 6.6 |
| | PA | 68 | 56.2 | 56.2 | 62.8 |
| | FA | 45 | 37.2 | 37.2 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**videos/videodiscs**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | NA | 40 | 33.1 | 33.1 | 33.1 |
| | UC | 29 | 24.0 | 24.0 | 57.0 |
| | PA | 32 | 26.4 | 26.4 | 83.5 |
| | FA | 20 | 16.5 | 16.5 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**hypermedia data bases**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | NA | 13 | 10.7 | 10.7 | 10.7 |
| | UC | 42 | 34.7 | 34.7 | 45.5 |
| | PA | 26 | 21.5 | 21.5 | 66.9 |
| | FA | 40 | 33.1 | 33.1 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**printed photos maaps and schematic drawing**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | UC | 4 | 3.3 | 3.3 | 3.3 |
| | PA | 13 | 10.7 | 10.7 | 14.0 |
| | FA | 104 | 86.0 | 86.0 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**audio and video digitizers**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | NA | 5 | 4.1 | 4.1 | 4.1 |
| | PA | 101 | 83.5 | 83.5 | 87.6 |
| | FA | 15 | 12.4 | 12.4 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**the world wide web**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | NA | 9 | 7.4 | 7.4 | 7.4 |
| | UC | 3 | 2.5 | 2.5 | 9.9 |
| | PA | 26 | 21.5 | 21.5 | 31.4 |
| | FA | 83 | 68.6 | 68.6 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**digital still or video camera**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | NA | 4 | 3.3 | 3.3 | 3.3 |
| | UC | 17 | 14.0 | 14.0 | 17.4 |
| | PA | 21 | 17.4 | 17.4 | 34.7 |
| | FA | 79 | 65.3 | 65.3 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**digital video and still image cameras**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | NA | 4 | 3.3 | 3.3 | 3.3 |
| | UC | 8 | 6.6 | 6.6 | 9.9 |
| | PA | 40 | 33.1 | 33.1 | 43.0 |
| | FA | 69 | 57.0 | 57.0 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**electronic chalkboards or smart boards**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | NA | 47 | 38.8 | 38.8 | 38.8 |
| | UC | 13 | 10.7 | 10.7 | 49.6 |
| | PA | 51 | 42.1 | 42.1 | 91.7 |
| | FA | 10 | 8.3 | 8.3 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**hypermedia texts**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | NA | 16 | 13.2 | 13.2 | 13.2 |
| | UC | 9 | 7.4 | 7.4 | 20.7 |
| | PA | 72 | 59.5 | 59.5 | 80.2 |
| | FA | 24 | 19.8 | 19.8 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**digital texts**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | NA | 49 | 40.5 | 40.5 | 40.5 |
| | UC | 21 | 17.4 | 17.4 | 57.9 |
| | PA | 40 | 33.1 | 33.1 | 90.9 |
| | FA | 11 | 9.1 | 9.1 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**web based texts**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | NA | 10 | 8.3 | 8.3 | 8.3 |
| | UC | 19 | 15.7 | 15.7 | 24.0 |
| | PA | 81 | 66.9 | 66.9 | 90.9 |
| | FA | 11 | 9.1 | 9.1 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**CDROM/DVD dictionaries and encyclopedia**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | NA | 11 | 9.1 | 9.1 | 9.1 |
| | UC | 6 | 5.0 | 5.0 | 14.0 |
| | PA | 29 | 24.0 | 24.0 | 38.0 |
| | FA | 75 | 62.0 | 62.0 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**Transparency**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | NA | 5 | 4.1 | 4.1 | 4.1 |
| | UC | 13 | 10.7 | 10.7 | 14.9 |
| | PA | 65 | 53.7 | 53.7 | 68.6 |
| | FA | 38 | 31.4 | 31.4 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**digital cameras**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | NA | 5 | 4.1 | 4.1 | 4.1 |
| | UC | 5 | 4.1 | 4.1 | 8.3 |
| | PA | 61 | 50.4 | 50.4 | 58.7 |
| | FA | 50 | 41.3 | 41.3 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**scanners or digitizers**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | NA | 45 | 37.2 | 37.2 | 37.2 |
| | UC | 8 | 6.6 | 6.6 | 43.8 |
| | PA | 38 | 31.4 | 31.4 | 75.2 |
| | FA | 30 | 24.8 | 24.8 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**digital[web an cd based ] video**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | NA | 15 | 12.4 | 12.4 | 12.4 |
| | UC | 16 | 13.2 | 13.2 | 25.6 |
| | PA | 57 | 47.1 | 47.1 | 72.7 |
| | FA | 33 | 27.3 | 27.3 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**interactive[web and cd based]stimulaton**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | NA | 23 | 19.0 | 19.0 | 19.0 |
| | UC | 18 | 14.9 | 14.9 | 33.9 |
| | PA | 70 | 57.9 | 57.9 | 91.7 |
| | FA | 10 | 8.3 | 8.3 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**digital reading environments**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | NA | 28 | 23.1 | 23.1 | 23.1 |
| | UC | 30 | 24.8 | 24.8 | 47.9 |
| | PA | 42 | 34.7 | 34.7 | 82.6 |
| | FA | 21 | 17.4 | 17.4 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**Projector**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | NA | 50 | 41.3 | 41.3 | 41.3 |
| | UC | 8 | 6.6 | 6.6 | 47.9 |
| | PA | 40 | 33.1 | 33.1 | 81.0 |
| | FA | 23 | 19.0 | 19.0 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**Television**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | NA | 13 | 10.7 | 10.7 | 10.7 |
| | UC | 5 | 4.1 | 4.1 | 14.9 |
| | PA | 30 | 24.8 | 24.8 | 39.7 |
| | FA | 73 | 60.3 | 60.3 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**Computer**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | PA | 34 | 28.1 | 28.1 | 28.1 |
| | FA | 87 | 71.9 | 71.9 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**Graphics**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | NA | 9 | 7.4 | 7.4 | 7.4 |
| | UC | 3 | 2.5 | 2.5 | 9.9 |
| | PA | 26 | 21.5 | 21.5 | 31.4 |
| | FA | 83 | 68.6 | 68.6 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**digital audio[web and cd based]**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | NA | 12 | 9.9 | 9.9 | 9.9 |
| | UC | 49 | 40.5 | 40.5 | 50.4 |
| | PA | 23 | 19.0 | 19.0 | 69.4 |
| | FA | 37 | 30.6 | 30.6 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

```
FREQUENCIES VARIABLES=B1 B2 B3 B4 B5 B6 B7 B8 B9 B10 B11 B12 B13 B14 B15 B16 B17 B18 B19 B20 B21 B22
B23 B24 B25
 /STATISTICS=MEAN
 /ORDER=ANALYSIS.
```

**Table 2**
**Frequencies**

## Frequency Table

**visual preenter/document cameras**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | UO | 11 | 9.1 | 9.1 | 9.1 |
| | PO | 9 | 7.4 | 7.4 | 16.5 |
| | FO | 70 | 57.9 | 57.9 | 74.4 |
| | EO | 31 | 25.6 | 25.6 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**digital photos maps and shematic drawings**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | UO | 8 | 6.6 | 6.6 | 6.6 |
| | PO | 9 | 7.4 | 7.4 | 14.0 |
| | FO | 80 | 66.1 | 66.1 | 80.2 |
| | EO | 24 | 19.8 | 19.8 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**videos/videodiscs**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | UO | 12 | 9.9 | 9.9 | 9.9 |
| | PO | 5 | 4.1 | 4.1 | 14.0 |
| | FO | 42 | 34.7 | 34.7 | 48.8 |
| | EO | 62 | 51.2 | 51.2 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**hypermedia data bases**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | UO | 3 | 2.5 | 2.5 | 2.5 |
| | PO | 13 | 10.7 | 10.7 | 13.2 |
| | FO | 81 | 66.9 | 66.9 | 80.2 |
| | EO | 24 | 19.8 | 19.8 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**printed photos maaps and schematic drawing**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | UO | 3 | 2.5 | 2.5 | 2.5 |
| | PO | 5 | 4.1 | 4.1 | 6.6 |
| | FO | 50 | 41.3 | 41.3 | 47.9 |
| | EO | 63 | 52.1 | 52.1 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**audio and video digitizers**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | UO | 12 | 9.9 | 9.9 | 9.9 |
| | PO | 5 | 4.1 | 4.1 | 14.0 |
| | FO | 32 | 26.4 | 26.4 | 40.5 |
| | EO | 72 | 59.5 | 59.5 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**the world wide web**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | UO | 12 | 9.9 | 9.9 | 9.9 |
| | PO | 7 | 5.8 | 5.8 | 15.7 |
| | FO | 88 | 72.7 | 72.7 | 88.4 |
| | EO | 14 | 11.6 | 11.6 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**digital still or video camera**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | UO | 4 | 3.3 | 3.3 | 3.3 |
| | PO | 1 | .8 | .8 | 4.1 |
| | FO | 35 | 28.9 | 28.9 | 33.1 |
| | EO | 81 | 66.9 | 66.9 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**digital video and still image cameras**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | UO | 5 | 4.1 | 4.1 | 4.1 |
| | PO | 8 | 6.6 | 6.6 | 10.7 |
| | FO | 16 | 13.2 | 13.2 | 24.0 |
| | EO | 92 | 76.0 | 76.0 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**electronic chalkboards or smart boards**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | UO | 41 | 33.9 | 33.9 | 33.9 |
| | PO | 21 | 17.4 | 17.4 | 51.2 |
| | FO | 32 | 26.4 | 26.4 | 77.7 |
| | EO | 27 | 22.3 | 22.3 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**hypermedia texts**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | UO | 50 | 41.3 | 41.3 | 41.3 |
| | PO | 10 | 8.3 | 8.3 | 49.6 |
| | FO | 30 | 24.8 | 24.8 | 74.4 |
| | EO | 31 | 25.6 | 25.6 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**digital texts**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | UO | 12 | 9.9 | 9.9 | 9.9 |
| | PO | 15 | 12.4 | 12.4 | 22.3 |
| | FO | 27 | 22.3 | 22.3 | 44.6 |
| | EO | 67 | 55.4 | 55.4 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**web based texts**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | UO | 7 | 5.8 | 5.8 | 5.8 |
| | PO | 5 | 4.1 | 4.1 | 9.9 |
| | FO | 86 | 71.1 | 71.1 | 81.0 |
| | EO | 23 | 19.0 | 19.0 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**CDROM/DVD dictionaries and encyclopedia**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | UO | 4 | 3.3 | 3.3 | 3.3 |
| | PO | 10 | 8.3 | 8.3 | 11.6 |
| | FO | 45 | 37.2 | 37.2 | 48.8 |
| | EO | 62 | 51.2 | 51.2 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**transparency**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | UO | 5 | 4.1 | 4.1 | 4.1 |
| | PO | 21 | 17.4 | 17.4 | 21.5 |
| | FO | 28 | 23.1 | 23.1 | 44.6 |
| | EO | 67 | 55.4 | 55.4 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**digital cameras**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | UO | 4 | 3.3 | 3.3 | 3.3 |
| | PO | 17 | 14.0 | 14.0 | 17.4 |
| | FO | 21 | 17.4 | 17.4 | 34.7 |
| | EO | 79 | 65.3 | 65.3 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**scanners or digitizers**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | UO | 4 | 3.3 | 3.3 | 3.3 |
| | PO | 22 | 18.2 | 18.2 | 21.5 |
| | FO | 37 | 30.6 | 30.6 | 52.1 |
| | EO | 58 | 47.9 | 47.9 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**digital[web an cd based ] viddeo**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | UO | 12 | 9.9 | 9.9 | 9.9 |
| | PO | 8 | 6.6 | 6.6 | 16.5 |
| | FO | 66 | 54.5 | 54.5 | 71.1 |
| | EO | 35 | 28.9 | 28.9 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**interactive[web and cd based]stimulaton**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | UO | 4 | 3.3 | 3.3 | 3.3 |
| | PO | 36 | 29.8 | 29.8 | 33.1 |
| | FO | 53 | 43.8 | 43.8 | 76.9 |
| | EO | 28 | 23.1 | 23.1 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**digital reading environments**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | UO | 7 | 5.8 | 5.8 | 5.8 |
| | PO | 55 | 45.5 | 45.5 | 51.2 |
| | FO | 22 | 18.2 | 18.2 | 69.4 |
| | EO | 37 | 30.6 | 30.6 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**Projector**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | UO | 13 | 10.7 | 10.7 | 10.7 |
| | PO | 52 | 43.0 | 43.0 | 53.7 |
| | FO | 35 | 28.9 | 28.9 | 82.6 |
| | EO | 21 | 17.4 | 17.4 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**Television**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | UO | 4 | 3.3 | 3.3 | 3.3 |
| | PO | 16 | 13.2 | 13.2 | 16.5 |
| | FO | 3 | 2.5 | 2.5 | 19.0 |
| | EO | 98 | 81.0 | 81.0 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**Computer**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | UO | 3 | 2.5 | 2.5 | 2.5 |
| | PO | 12 | 9.9 | 9.9 | 12.4 |
| | FO | 5 | 4.1 | 4.1 | 16.5 |
| | EO | 101 | 83.5 | 83.5 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**Graphics**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | UO | 8 | 6.6 | 6.6 | 6.6 |
| | PO | 5 | 4.1 | 4.1 | 10.7 |
| | FO | 24 | 19.8 | 19.8 | 30.6 |
| | EO | 84 | 69.4 | 69.4 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**digital audio[web and cd based]**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | UO | 5 | 4.1 | 4.1 | 4.1 |
| | PO | 18 | 14.9 | 14.9 | 19.0 |
| | FO | 53 | 43.8 | 43.8 | 62.8 |
| | EO | 45 | 37.2 | 37.2 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

```
FREQUENCIES VARIABLES=C1 C2 C3 C4 C5 C6 C7 C8 C9 C10 C11 C12 C13 C14 C15 C16 C17 C18 C19 C20 C21 C22
C23 C24 C25
 /STATISTICS=MEAN
 /ORDER=ANALYSIS.
```

## Table 3
## Frequencies

## Frequency Table

**visual preenter/document cameras**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | NU | 13 | 10.7 | 10.7 | 10.7 |
| | FU | 83 | 68.6 | 68.6 | 79.3 |
| | EU | 25 | 20.7 | 20.7 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**digital photos maps and shematic drawings**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | NU | 9 | 7.4 | 7.4 | 7.4 |
| | PU | 3 | 2.5 | 2.5 | 9.9 |
| | FU | 64 | 52.9 | 52.9 | 62.8 |
| | EU | 45 | 37.2 | 37.2 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**videos/videodiscs**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | NU | 12 | 9.9 | 9.9 | 9.9 |
| | PU | 8 | 6.6 | 6.6 | 16.5 |
| | FU | 34 | 28.1 | 28.1 | 44.6 |
| | EU | 67 | 55.4 | 55.4 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**hypermedia data bases**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | NU | 16 | 13.2 | 13.2 | 13.2 |
| | PU | 47 | 38.8 | 38.8 | 52.1 |
| | FU | 33 | 27.3 | 27.3 | 79.3 |
| | EU | 25 | 20.7 | 20.7 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**printed photos maaps and schematic drawingd**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | NU | 16 | 13.2 | 13.2 | 13.2 |
| | PU | 5 | 4.1 | 4.1 | 17.4 |
| | FU | 24 | 19.8 | 19.8 | 37.2 |
| | EU | 76 | 62.8 | 62.8 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**audio and video digitizers**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | NU | 12 | 9.9 | 9.9 | 9.9 |
| | PU | 23 | 19.0 | 19.0 | 28.9 |
| | FU | 17 | 14.0 | 14.0 | 43.0 |
| | EU | 69 | 57.0 | 57.0 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**the world wide web**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | NU | 20 | 16.5 | 16.5 | 16.5 |
| | PU | 10 | 8.3 | 8.3 | 24.8 |
| | FU | 47 | 38.8 | 38.8 | 63.6 |
| | EU | 44 | 36.4 | 36.4 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**digital still or video camera**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | NU | 12 | 9.9 | 9.9 | 9.9 |
| | PU | 9 | 7.4 | 7.4 | 17.4 |
| | FU | 71 | 58.7 | 58.7 | 76.0 |
| | EU | 29 | 24.0 | 24.0 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**digital video and still image cameras**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | NU | 24 | 19.8 | 19.8 | 19.8 |
| | PU | 7 | 5.8 | 5.8 | 25.6 |
| | FU | 38 | 31.4 | 31.4 | 57.0 |
| | EU | 52 | 43.0 | 43.0 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**electronic chalkboards or smart boards**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | NU | 62 | 51.2 | 51.2 | 51.2 |
| | PU | 18 | 14.9 | 14.9 | 66.1 |
| | FU | 21 | 17.4 | 17.4 | 83.5 |
| | EU | 20 | 16.5 | 16.5 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**hypermedia texts**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | NU | 56 | 46.3 | 46.3 | 46.3 |
| | PU | 15 | 12.4 | 12.4 | 58.7 |
| | FU | 31 | 25.6 | 25.6 | 84.3 |
| | EU | 19 | 15.7 | 15.7 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**digital texts**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | NU | 26 | 21.5 | 21.5 | 21.5 |
| | PU | 1 | .8 | .8 | 22.3 |
| | FU | 64 | 52.9 | 52.9 | 75.2 |
| | EU | 30 | 24.8 | 24.8 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**web based texts**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | NU | 14 | 11.6 | 11.6 | 11.6 |
| | PU | 5 | 4.1 | 4.1 | 15.7 |
| | FU | 80 | 66.1 | 66.1 | 81.8 |
| | EU | 22 | 18.2 | 18.2 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**CDROM/DVD dictionaries and encyclopedia**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | NU | 9 | 7.4 | 7.4 | 7.4 |
| | PU | 11 | 9.1 | 9.1 | 16.5 |
| | FU | 66 | 54.5 | 54.5 | 71.1 |
| | EU | 35 | 28.9 | 28.9 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**transparency**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | NU | 13 | 10.7 | 10.7 | 10.7 |
| | PU | 20 | 16.5 | 16.5 | 27.3 |
| | FU | 7 | 5.8 | 5.8 | 33.1 |
| | EU | 81 | 66.9 | 66.9 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**digital cameras**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | NU | 5 | 4.1 | 4.1 | 4.1 |
| | PU | 10 | 8.3 | 8.3 | 12.4 |
| | FU | 35 | 28.9 | 28.9 | 41.3 |
| | EU | 71 | 58.7 | 58.7 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**scanners or digitizers**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | NU | 6 | 5.0 | 5.0 | 5.0 |
| | PU | 59 | 48.8 | 48.8 | 53.7 |
| | FU | 33 | 27.3 | 27.3 | 81.0 |
| | EU | 23 | 19.0 | 19.0 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**digital[web an cd based ] viddeo**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | NU | 16 | 13.2 | 13.2 | 13.2 |
| | PU | 9 | 7.4 | 7.4 | 20.7 |
| | FU | 60 | 49.6 | 49.6 | 70.2 |
| | EU | 36 | 29.8 | 29.8 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**interactive[web and cd based]stimulaton**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | NU | 6 | 5.0 | 5.0 | 5.0 |
| | PU | 13 | 10.7 | 10.7 | 15.7 |
| | FU | 59 | 48.8 | 48.8 | 64.5 |
| | EU | 43 | 35.5 | 35.5 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**digital reading environments**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | NU | 43 | 35.5 | 35.5 | 35.5 |
| | PU | 18 | 14.9 | 14.9 | 50.4 |
| | FU | 34 | 28.1 | 28.1 | 78.5 |
| | EU | 26 | 21.5 | 21.5 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**Projector**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | NU | 5 | 4.1 | 4.1 | 4.1 |
| | PU | 13 | 10.7 | 10.7 | 14.9 |
| | FU | 16 | 13.2 | 13.2 | 28.1 |
| | EU | 87 | 71.9 | 71.9 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**Television**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | NU | 5 | 4.1 | 4.1 | 4.1 |
| | PU | 10 | 8.3 | 8.3 | 12.4 |
| | FU | 6 | 5.0 | 5.0 | 17.4 |
| | EU | 100 | 82.6 | 82.6 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**Computer**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | NU | 5 | 4.1 | 4.1 | 4.1 |
| | PU | 10 | 8.3 | 8.3 | 12.4 |
| | FU | 7 | 5.8 | 5.8 | 18.2 |
| | EU | 99 | 81.8 | 81.8 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**Graphics**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | NU | 10 | 8.3 | 8.3 | 8.3 |
| | PU | 10 | 8.3 | 8.3 | 16.5 |
| | FU | 30 | 24.8 | 24.8 | 41.3 |
| | EU | 71 | 58.7 | 58.7 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

**digital audio[web and cd based]**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | NU | 5 | 4.1 | 4.1 | 4.1 |
| | PU | 54 | 44.6 | 44.6 | 48.8 |
| | FU | 39 | 32.2 | 32.2 | 81.0 |
| | EU | 23 | 19.0 | 19.0 | 100.0 |
| | Total | 121 | 100.0 | 100.0 | |

`

## Hyp1 T-Test

**Group Statistics**

| | gender | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| Availability_of_Multimedia_resources 1 | male | 95 | 74.3789 | 10.91279 | 1.11963 |
| | female | 26 | 71.6154 | 6.17140 | 1.21031 |

**Independent Samples Test**

| | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | |
|---|---|---|---|---|---|---|---|---|
| | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference |

| | | | | | | | | | Lower | Upper |
|---|---|---|---|---|---|---|---|---|---|---|
| Availability_of_Multimedia_resources1 | Equal variances assumed | 6.981 | .009 | 1.236 | 119 | .219 | 2.763 | 2.2361 | -1.6641 | 7.19132 |
| | Equal variances not assumed | | | 1.676 | 72.0 | .098 | 2.766 | 1.6487 | -.5231 | 6.05026 |

```
T-TEST GROUPS=gender(1 2)
  /MISSING=ANALYSIS
  /VARIABLES=Organization_of_Multimedia_resources2
  /CRITERIA=CI(.95).
```

## Hypo2 T-Test

**Group Statistics**

| | gender | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| Organization_of_Multimedia_resources2 | male | 95 | 78.7579 | 12.16965 | 1.24858 |
| | female | 26 | 78.0000 | 8.10432 | 1.58939 |

**Independent Samples Test**

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
| | | | | | | | | | Lower | Upper |
| Organization_of_Multimedia_resources2 | Equal variances assumed | 1.172 | .281 | .299 | 119 | .765 | .75789 | 2.53118 | -4.25410 | 5.76989 |
| | Equal variances not assumed | | | .375 | 59.364 | .709 | .75789 | 2.02116 | -3.28593 | 4.80172 |

```
T-TEST GROUPS=gender(1 2)
  /MISSING=ANALYSIS
  /VARIABLES=Utilization_of_multimedia_resources
  /CRITERIA=CI(.95).
```

## Hypo 3
## T-Test

**Group Statistics**

| | gender | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| Utilization_of_multimedia_resources | male | 95 | 75.2632 | 15.29790 | 1.56953 |
| | female | 26 | 73.6538 | 6.74651 | 1.32310 |

**Independent Samples Test**

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
| | | | | | | | | | Lower | Upper |
| Utilization_of_multimedia_resources | Equal variances assumed | 8.424 | .004 | .521 | 119 | .603 | 1.60931 | 3.08616 | -4.50158 | 7.72021 |
| | Equal variances not assumed | | | .784 | 94.891 | .435 | 1.60931 | 2.05281 | -2.46609 | 5.68471 |

```
T-TEST GROUPS=college(1 2)
  /MISSING=ANALYSIS
  /VARIABLES=Availability_of_Multimedia_resources1
  /CRITERIA=CI(.95).
```

## Hypon 4T-Test

**Group Statistics**

| | college ownership | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| Availability_of_Multimedia_resources 1 | Federal | 55 | 74.5636 | 13.18636 | 1.77805 |
| | State | 66 | 73.1364 | 6.62370 | .81532 |

**Independent Samples Test**

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
| | | | | | | | | | Lower | Upper |
| Availability_of_Multimedia_resources 1 | Equal variances assumed | 22.068 | .000 | .771 | 119 | .442 | 1.427 | 1.851 | -2.239 | 5.093 |
| | Equal variances not assumed | | | .730 | 76.29 | .468 | 1.427 | 1.956 | -2.46 | 5.322 |

```
T-TEST GROUPS=college(1 2)
  /MISSING=ANALYSIS
  /VARIABLES=Organization_of_Multimedia_resources2
  /CRITERIA=CI(.95).
```

**Hypo 5**
**T-Test**

**Group Statistics**

| | college ownership | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| Organization_of_Multimedia_resources2 | Federal | 55 | 73.1091 | 14.96870 | 2.01838 |
| | State | 66 | 83.1667 | 2.60522 | .32068 |

**Independent Samples Test**

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | F | Sig. | T | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
| | | | | | | | | | Lower | Upper |
| Organization_of_Multimedia_resources2 | Equal variances assumed | 80.121 | .000 | -5.366 | 119 | .000 | -10.05758 | 1.87423 | -13.76874 | -6.34641 |
| | Equal variances not assumed | | | -4.921 | 56.731 | .000 | -10.05758 | 2.04370 | -14.15043 | -5.96473 |

```
T-TEST GROUPS=college(1 2)
  /MISSING=ANALYSIS
  /VARIABLES=Utilization_of_multimedia_resources
  /CRITERIA=CI(.95).
```

## Hypo 6
## T-Test

**group Statistics**

| | college ownership | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| Utilization_of_multimedia_resources | Federal | 55 | 71.6182 | 17.70383 | 2.38718 |
| | State | 66 | 77.6667 | 8.91556 | 1.09743 |

**Independent Samples Test**

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
| | | | | | | | | | Lower | Upper |
| Utilization_of_multimedia_resources | Equal variances assumed | 31.634 | .000 | -2.431 | 119 | .017 | -6.04848 | 2.487 | -10.97 | -1.122 |
| | Equal variances not assumed | | | -2.30 | 76.402 | .024 | -6.048 | 2.627 | -11.28 | -.816 |

```
FREQUENCIES VARIABLES=v1 v2 v3 v4 v5 v6 v7 v8 v9 v10 v11 v12 v13 v14 v15 v16 v17 v18 v19 v20 v21 v22 v23 v24
v25
  /STATISTICS=MEAN
  /ORDER=ANALYSIS.
```