IMPACT OF COMPUTER ASSISTED INSTRUCTIONS ON THE ACADEMIC PERFORMANCE OF STUDENTS IN SOCIAL STUDIES IN ENUGU STATE, NIGERIA

BY

Chibuzo Clara ONUIGBO (MRS.)

DEPARTMENT OF EDUCATIONAL FOUNDATION AND CURRICULUM
AHMADU BELLO UNIVERSITY, ZARIA

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A DISSERTATION SUBMITTED TO THE POST-GRADUATE SCHOOL, AHMADU BELLO UNIVERSITY, ZARIA IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF DEGREE OF DOCTOR OF PHILOSOPHY IN CURRICULUM AND INSTRUCTION, AHMADU BELLO UNIVERSITY ZARIA, NIGERIA

DEPARTMENT OF EDUCATIONAL FOUNDATION AND CURRICULUM
AHMADU BELLO UNIVERSITY, ZARIA

AUGUST, 2012

DECLARATION

I hereby declare that this thesis entitled "Impact of Computer Assisted Instruction on the Academic Performance of students in social studies in Enugu State, Nigeria" has been produced by me in the Department of Educational Foundation and Curriculum under the supervision of Prof. M. Ben-Yunusa, Dr. (Mrs.) H. O. Yusuf and Dr. M. Sadiq. The information derived from the literature has been duly acknowledged in the text and a list of references provided.

No part of this thesis was previously presented for another degree at any university.

_____	_____	_____
Name of student	Signature	Date

CERTIFICATION

This Thesis entitled **Impact of Computer Assisted Instruction on the Academic Performance of Students in Social Studies in Enugu State, Nigeria** by Chibuzo Clara Onuigbo (Mrs.) meets the regulations governing the award of the Degree of Doctor of Philosophy (PhD) in Curriculum and Instruction in the Department of Education of Ahmadu Bello University, Zaria and is approved for it's contribution to knowledge and literacy presentation.

_____ _____
Prof M. Ben-Yunusa Date
Chairman, Supervisory Committee

_____ _____
Dr (Mrs.) H. O. Yusuf Date
Member, Supervisory Committee

_____ _____
Dr. M. Sadiq Date
Member, Supervisory Committee

_____ _____
Dr. B. Maina Date
Head, Educational Foundation and Curriculum

_____ _____
Prof A. A. Joshua Date
Dean, Post Graduate School

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ABSTRACT

The current teacher-centred and textbook bound classroom instructional techniques in use for the teaching of social studies requires adjustment to embrace new technology in form of information and communication technology (ICT) as enshrined in the social studies curriculum for junior secondary school 1-3. This will enhance students' performance at the junior secondary school social studies examination. To address the above issue, Computer Assisted Instruction (CAI) has been recommended by the Federal Ministry of Education to be included in the teaching of social studies to improve students' performance hence the study. To carry out the study, six research questions were posed in line with the purpose of the study. Also, six hypotheses guided the study and were tested at 0.05 level of significance. Three hypotheses were rejected and the other three were accepted. The design of the study was quasi-experimental design. Specifically, pre-test, post-test, non equivalent group design was used. The population of the study was all the JSSI students in Public Junior Secondary Schools in Enugu State, Nigeria. The students' population stood at 6383. From this population, eight co-educational Junior Secondary Schools with a population of 806 female students and 676 male students were purposively sampled for the study. The choice of the schools was because, they share similar characteristics like having adequate computer sets and qualified Social Studies teachers who were computer compliant. Four schools were randomly selected and assigned for experimental group while the remaining four schools were randomly selected and assigned for control group. The total sample used was 1,482 students. Data collection was carried out using Social Studies Achievement Test (SSAT) after exposing the students to the treatments. The instrument was developed by Examination Development Centres, Enugu, Awka, Abakaliki and Umuahia 2004-2007 and the questions relating to physical environment were lifted from them on permission. The reliability of the instrument was 0.73. The data collected were analyzed using mean, standard deviation, T-test and ANOVA which were tested at 0.05 level of significance. Among the findings of the study are: students taught Social Studies with CAI performed better than those taught using conventional method, and that boys and girls alike taught Social Studies with CAI performed well equally. Based on the findings, CAI is indispensable if the teaching and learning of Social Studies is to be effective and meaningful. Recommendations were made which included that Teachers should be computer literate, and that Enugu State Government should encourage and liaise with stakeholders in the state to provide well equipped computer laboratories in all secondary schools in the state among others.

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ABREVIATIONS

ATI	-	Audio taped Instruction
CAI	-	Computer Assisted Instruction
CALL	-	Computer Assisted Language Learning
CAT	-	Computer Assisted Testing
CMI	-	Computer Managed Instruction
FLII	-	French Language Interest Inventory
FME	-	Federal Ministry of Education
FRN	-	Federal Republic of Nigeria
JSSCE	-	Junior Secondary School Certificate Education
MDGs	-	Millennium Development Goals
NECO	-	National Examination Council
NEEDS	-	National Economic Empowerments and Development
SSAT	-	Strategies
SSCAIP	-	Social Studies Achievement Test
VTI		Social Studies Computer Assisted Instruction Packages
		Video Taped Instruction

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Secondary education in Nigeria is of six years duration, divided into Junior Secondary School (3 years) and Senior Secondary School (3 years). The two stages are both vocational and academic in nature. The broad goal of secondary education according to the National Policy on Education (NPE, 2004) is to prepare the individual citizen for useful living within the society and preparation for higher education.

One of the core subjects offered at the Junior Secondary School level which takes into consideration societal needs and which incorporates many of the contemporary issues of local and global concern such as youth unemployment and youth restiveness, environmental issues, drug abuse, child/woman trafficking and family life education is Social Studies. Other societal needs covered by Social Studies in basic education curriculum include, HIV/AIDS preventive education, gender issues, peace and conflict issues, Nigerian peoples and their cultures, the mass media, globalization, Millennium Development Goals (MDGS) including National Economic Empowerment and Development Strategies NEEDS curriculum. One of the major reasons that have prompted many educational authorities, planners and experts regarding the inclusion of social studies in the curriculum of school derives essentially from the subjects concern for propagating and instilling the tenets and objectives of the Affective Domain (attitudes, interests, beliefs,

feelings and values) in the minds of youngsters who are exposed to social studies.

Obemeata (1983) observed that the main attraction of social studies as a popular school subject centres on the view that it deals with human behaviour and the belief that it can play a major role in influencing the attitude of the young and the up-growing generation.

The present social studies curriculum may be simply explained as the outcome of realignment and restructuring of the revised curriculum for primary and junior secondary school studies. In keeping with contemporary developments worldwide, relevant contents were taken from the following areas; people and their environment, socialization, culture, social issues and problems, family life education, national unity and integration, information and communication technology, science, technology and society, national economy, community, health issues, peace and conflict and world issues.

The above themes of the curriculum run from 7 – 9 upper basic (Junior Secondary Schools) education in Nigeria. With these emphases, therefore, adequate attention should be given to the kind of teaching methods employed for teaching social studies in Junior Secondary School by teachers. The multiple roles of social studies in the society now necessitates a shift from conventional methods of teaching to modern teaching methods of which Computer Assisted Instruction is one of them.

The objectives of studying social studies in junior secondary schools in Nigeria according to Federal Ministry of Education (FME, 2007: VI) are to:

1. Develop the ability of the individual to adopt to his or her changing

environment;

2. Become responsible and disciplined individuals capable and willing to contribute to the development of their societies.
3. Inculcate the right types of values;
4. Develop a sense of comprehension towards other people, their diverse cultures, history and those fundamental things that make them human.
5. Develop the capacity to recognize the many dimensions of being human in different cultural and social contexts and
6. Develop a sense of solidarity and sharing based on a sense of security in one's own identity.

The teaching of social studies in schools therefore, is expected to contribute to an acquisition and sustenance of desirable attitudes, characteristic of effective citizenry within a democratic society. In meeting with the above challenges, the teaching methods recommended for implementation of the social studies curriculum are integrated approach to social studies teaching, guided inquiry methods of teaching and information, communication and technology (ICT) assisted instruction which promote learning by doing and skill development (FME, 2007).

Teachers of social studies are increasingly facing serious instructional challenges as the diversity of students within each classroom continues to widen, Patterson, (2002), observed that within each classroom, students of a wide academic range with different labels such as gifted, fast learners and below average learners face their teachers daily with hope that their needs will be met. The conventional teaching methods like lecture method among others

seem not to have adequately equipped teachers with contemporary views of students' intelligence and their vast learning capabilities (Compbell, 1999), hence, the instructional techniques adopted do not adequately cater for the students' diverse dispositions. One possible solution to these challenges is the use of computer assisted instructional teaching approach which is one of the ICT facilities as recommended by the Federal Ministry of Education (2007) for the implementation of 9-year Basic Education curriculum for Junior Secondary School social studies. The above, according to the same document will promote the academic performance of students in social studies. Performance is the ability of students to carryout tasks whose outcome is the accomplishment in a specified programme of instruction in a subject area or occupation which students had undertaken in the past.

Academic performance is the translation of the student's achievement in examinations or tests into scores obtained in a cognitive test (Anene, 2005). Academic performance refers to achievement in a school subject as designated by a score or mark obtained in a test or examination. A test is an instrument administered to an individual as a stimulus to elicit certain desired and expected responses, as demanded in the instrument, performance in which the individual is assigned a score representing achievement. (Olailan, Ekong, Igbo and Nwachukwu, (2002). In other words, academic performance is always denoted by a score which represents the amount of learning acquired, knowledge gained or skills and competencies developed in the school subject. Academic performance may refer to some methods of expressing a student's

scholastic standing. This can be regarded as subject grade, average for a group of subjects in a programme such as social studies.

Artherton (2003), maintained that academic performance is dependent on several factors like teaching methods, intelligence, background, organization, opportunity and motivation. Paroye (1981) however had postulated that the above factors could be grouped into three categories as the learners, the school and the environmental factors.

Performance in this context refers to academic achievement of the students that can be measured in terms of scores obtained in social studies tests administered by social studies teachers or examination bodies such as National Examination Council (NECO), which conducts Junior School Certificate Examination and the Examination development Centres, a department of the State Ministry of Education which conducts Junior Secondary School Certificate Examination for the various States, including Enugu State. Enugu State is a mainland state in south eastern Nigeria. Its capital is Enugu, from which the state, created in 1991 from the old Anambra State, derives its name. The word "Enugu" (From Enu Ugwu) means "top of the hill," other Nicknames of the state are Coal City state and Wawa state. The principal cities in the state are Enugu, Agbani, Awgu, Udi, and Nsukka. The state shares borders with Abia State and Imo State to the south, Ebonyi State to the northeast, Kogi state to the northwest, and Anambra state to the west.

Obodo (1990), had stated that when an instruction has been finished, the students should be tested to determine how the stated objectives have been achieved. The NECO Reports of 2005 and 2008 showed that the academic

performance of students in social studies was poor and persistent. The Council advised among others, that students should be taught with appropriate teaching methods to achieve better results. The advice notwithstanding, the academic performance of the students in social studies in the Junior Secondary School Certificate Examination conducted by Examination Development Centre of States like Enugu in the years 2005 to 2008, showed a poor academic performance. The JSSCE results in social studies in Enugu State, Nigeria are shown in table I below:

Table 1.1 in appendix E shows the academic performance of students in JSSCE examination in social studies from 2005 to 2008 in Enugu State. The same table shows that the percentage pass rates at credit level (A and C) were 10%, 18.7%, 23.6% and 21.4% respectively for the years under review with the corresponding absolute failure rate (F) as 69.4%, 52.3%, 56.1% and 52.2%. It can be seen from the table above that there was progressive improvement in students' performance at credit level and failure rates. However, the general students' overall performance has been generally poor. The observed poor academic performance when juxtaposed with the perceived high standard of intrest in social studies leaves one with the impression that the objectives of teaching the subject will not be achieved if the trend continues. These consistent students' poor performance in social studies in public examinations (see Table I) above, has given a lot of concern to educators, curriculum planners and students themselves – (Okoye, 2004). According to Nwoji (2003), teachers prefer to use the conventional methods instead of the modern information, communication and technology approach

like the computer assisted Instructional method in teaching social studies as recommended by Federal Ministry of Education (2007). Martin (2000) suggested that teachers should be encouraged to use a variety of instructional resources, like audio tapes, video tapes, radios, films, projectors, computers among others to teach their subjects of which social studies subject is one.

Many teaching methods have been used in the past for teaching social studies at the Junior Secondary Schools: These approaches include; lecture method, demonstration method, questioning techniques, discussion methods which are expository in nature. Expository methods, according to Nwokenna (2010), consist of the presentation of concepts, facts and principles by the teacher while the students are merely asked to listen and take notes. These facts and principles are drawn from text books based on the stipulated contents and cognitive levels within the unit of instruction. The foregoing presents a picture of the use of poor teaching methods during social studies instruction which according to Nwokenna (2010), may not improve the performance of students in their academic pursuit. The above scenario tends to suggest that the conventional teaching methods used have accounted for the persistent poor academic performance in social studies by junior secondary school students. It then means that more efforts should be intensified in developing new teaching methods which may improve the students' academic performance in social studies in junior secondary schools.

One of the recommended teaching approach by the Federal Ministry of Education (2007), is the Computer Assisted Instruction; a part of ICT. Computer Assisted Instruction (CAI) refers to the use of computer as a tool in

teaching and training. It includes drill and practice, tutorials, simulations, instructional management, supplementary exercises, data base management, word processing and other types of computer applications. According to Okundaye (2005), the term may also refer to the stand alone computer learning activities in the computer lesson with reinforced materials introduced and taught by teachers. The students receive feedback from the computer and maintain some degree of control. CAI as a supplement to conventional teacher-directed instruction produces achievement effects superior to those obtained with the traditional approach alone (Akudolu, 1998). Examples of CAI applications include guided drill practice exercise, computer visualization of complex objects, and computer facilitated communication between students and teachers. The guided drill is a computer programme that poses questions to students, returning feedback and selects additional questions based on the student's responses. Recent guided drill system incorporate the principles of education in addition to subject matter knowledge into computer programme. Some of the CAI tools (such as word processors, spreadsheets and data base) connect, organize, analyze and transmit information. They also facilitate communication among students and instructor, and beyond the classroom to distant students, instructors and experts.

Computer Assisted Instruction is the use of computer and component electronics in providing learning experiences and self directed instructions to a learner using tutorial and simulation packages, with little or no assistance from an instructor. In developed countries, the use of computer as a teaching tool has reached an advanced stage (Akundeye, 2005).

Generally, Computer Assisted Instruction (CAI) allows:

- Students to progress at their own speed of learning as Computer Assisted Instruction offers learners controlled instructions; provide prompt feedback to learners, allow for adaptability of instructions (presentations, mode and instructional content mode) using authority systems; provide lessons with more than one purpose; random access facilities and provide facilities for revision and updating, (Akundeye, 2005 P. 13).

Therefore, this study was specifically carried out to determine academic performance of students in Social Studies in Enugu State, Nigeria, using computer assisted instruction and conventional teaching methods. The choice of Enugu State was because it served as the capital city of one of the three (3) regions of Nigeria where people from north, south, east and west reside making the location have a resemblance of the attributes of the major tribes in the country.

Research attempt in investigating the impact of CAI on Junior Secondary School students' academic performance in social studies is not known to have been carried out to the knowledge of the researcher. Maybe the reason is because, the CAI as instructional approach is not popular among teachers especially the social studies teachers.

1.2 Statement of the Problem

The record from the Enugu State Examination Development Centre, and the NECO annual reports of JSSCE in social studies between 2005 and 2008 (See table I) revealed poor state in the Junior Secondary School students

results in social studies. The persistent poor academic performance of the students has been attributed by Ogwa (2002) to approaches or methods of teaching social studies. The Federal Ministry of Education (2007) advocated for a change in the strategies of imparting social studies instruction on the students by using ICT facilities like the Computer Assisted Instruction (CAI). The approach, according to UNESCO (2002), requires adjustment of the educational institutions to embrace new technology and appreciate computer technology as a learning tool to transform the present isolated, teacher-centred and textbook bound classroom into student-centred interactive knowledge environment.

Teachers of social studies are facing serious instructional challenges as the diversity of students within each classroom continues to widen. Students with such academic range with different labels as gifted, fast, average, slow and below average learners all face their teachers daily with full hope that their needs will be met. Teachers with their efforts often need to carry several chats, equipment specimen and others in order to teach a single topic effectively. However, these materials are often either unavailable or inaccessible; moreover, teachers do not have enough time between classes to procure and test these materials. Hence, most social studies classes are limited to uninspiring and sometimes incomprehensive verbal lectures.

The fact remains that the methods of teaching social studies which have been investigated and found effective have not produced desired effect on students' academic performance in social studies in Junior Secondary Schools. Moreover, the use of ICT facilities like the CAI recommended by the

Federal Ministry of Education in the 9-year basic curriculum in Social Studies for Junior Secondary 1-3 has not been tried out. These are the major reasons that compelled the researcher into embarking on this study.

The teachers are still attached to the traditional method of chalk and talk; the practice which makes them linger behind in contemporary demand for improved learning system in social studies curriculum. The perceived benefits of using CAI in schools include making teaching-learning interesting; helping in the distance learning programme; help teachers to be up-to-date; enhancing quality of work by both teachers and students.

Human capacity development through CAI facilities in junior secondary schools is in shortfall. This hampers the performance of junior secondary schools students in social studies. It is evident that most schools in the sampled areas lacked computer literate teachers. The lack of computer literate teachers might not be unconnected with the short supply of CAI facilities and motivation of teachers to embark on training programmes in the area of CAI application. Other problems facing the application of CAI in junior secondary schools include supply of substandard CAI facilities, high cost of standard CAI facilities, reluctance to adapt to use of CAI tools in teaching and learning, lack of constant power supply and lack of vision on the prospect of utilizing CAI facilities in teaching social studies in junior secondary schools is responsible for the academic performance level in realizing the objectives of the programme. The forgoing therefore underscore the need to look into the impact of Computer Assisted Instruction (CAI) on Junior Secondary School Students academic performance in social studies.

1.3 Objectives of the Study

The purpose of the study was to determine the impact of Computer Assisted Instruction (CAI) which is part of Information Communication Technology (ICT) facilities on Junior Secondary School Students' academic performance in social studies. Specifically:

1. To determine the academic performance of Students taught social studies with computer assisted Instruction (CAI) and those taught using conventional teaching methods.
2. To determine the retention of learning of students taught social studies with CAI and those taught using conventional teaching methods.
3. To compare the academic performance of boys and girls taught social studies using Computer Assisted Instruction (CAI)
4. To determine the interaction effect of gender and Computer Assisted Instruction (CAI) technique on students mean retention of learning of Social Studies.
5. To compare the academic performance of boys in each school taught social studies using Computer Assisted Instructions (CAI)
6. To compare the academic performance of girls in each school taught social studies using Computer Assisted Instruction (CAI)

1.4 Research Questions

The following research questions guided the study.

1. What are the mean scores of students taught social studies with Computer Assisted Instruction (CAI) and those taught using the conventional teaching methods?
2. What are the mean scores of students taught social studies with Computer Assisted Instruction (CAI) and those taught using conventional methods in the test for retention of learning?
3. What are the comparative mean achievement scores of boys and girls taught social studies using Computer Assisted Instruction (CAI)?
4. What interaction effect does gender and Computer Assisted Instruction (CAI) technique have on students' mean retention of learning in social studies?
5. What are the comparative mean scores of boys in each school taught social studies using Computer Assisted Instruction (CAI) and those taught social studies without CAI.
6. What are the comparative mean scores of girls in each school taught social studies using Computer Assisted Instruction (CAI) those taught social studies without CAI

1.5 Hypotheses

The following null hypotheses tested at 0.05 level of significance guided the study:

Ho_1 - There is no significant difference between the mean achievement scores of students taught social studies using computer assisted instruction and those taught using conventional teaching methods.

Ho_2 – There is no significant difference in the of retention of students taught social studies using computer assisted instruction and those taught using conventional teaching methods.

Ho_3 – There is no significant difference between the mean scores of boys and girls taught social studies using Computer Assisted Instruction (CAI)

Ho_4 – There is no significant difference between the mean scores of boys and girls taught social studies using Computer Assisted Instruction in the test for retention of learning.

H_{O5} – There is no significant difference between the mean scores of boys in each school taught social studies using Computer Assisted Instruction.

H_{O6} – There is no significant difference between the mean scores of girls in each school taught social studies using Computer Assisted Instruction.

1.6 Basic Assumptions

The study is based on the following assumptions:

1. That in schools where social studies teaching materials are available, some teachers do not use them while teaching,
2. That computer assisted Instruction has not been used in schools for the teaching of social studies,
3. That the principals, teachers, parents and students are ignorant of the impact the use of CAI can have on teaching and learning social studies,

1.7 Significance of the Study

The findings of this study will benefit social studies students, teachers, curriculum developers as well as the ministry of Education and future researchers.

Social studies students will benefit from the findings of the study as the use of computers to study the subject will boost their performance and retention. It will also help them to develop more interest and skill in the use of computers which will facilitate the acquisition of social studies skills such as sound societal values, norms and good attitude. The knowledge of their skill in computers will also help them to make proper career choice based on their capabilities on the use of CAI.

The findings will help teachers in choosing an appropriate instructional material capable of releasing students' tension towards the subject. It will motivate teachers to develop interest towards utilizing modern instructional materials as CAI, and selecting suitable teaching methods that will be a possible means towards reducing failure in the teaching and learning of social studies. It will equally help teachers to develop suitable methods for assessing students' academic performance in social studies. The findings will also sensitize social studies teachers on the benefits of the use of computer as a strategy for teaching and it will have greater effect on the academic performance and retention of the students. The research findings will as well form another dimension of innovations in the teaching and learning of social studies.

Curriculum planners will also benefit from the study, since, the results of the study will assist in curriculum planning such as giving information relating to the teaching and learning of social studies, CAI can be utilized in appropriate strategies of curriculum planning, modification and revision. Curriculum planners will also have knowledge of interaction between gender and instructional approach on students' achievement and retention in social studies.

Ministry of Education will benefit by using the findings to organize conferences, workshops and seminars to sensitize and retrain social studies teachers on the use of CAI to improve their teaching. It will help the Ministry of Education to provide computers in secondary schools for teaching of social studies and other subjects in the schools.

Educational researchers and scholars will benefit from the findings of this study as it will provide them with academic literature on the effects of the different instructional techniques used in this study on students' academic performance and retention of learning in social studies.

1.8 Delimitation of the Study

The study focused on the impact of Computer assisted instruction on the academic performance of students in social studies in Junior Secondary schools. Among the many topics covered by Junior Secondary School Certificate Examination social studies curriculum of the Federal Ministry of Education (2007), only the physical environment content was covered by this study. The content of physical environment is done in Junior Secondary one (1) and has the following lesson topics:

1. Type of environment
2. Features of physical and social environment
3. Resources in the environment
4. Influence of physical environment on human activities
5. Types of environmental problems
6. Causes of environmental problems
7. Effects of environmental problems on the society
8. Solution to the environmental problems

The choice of physical environment and JS one (1) was because the physical environment has many topics and is offered in JS I and the techniques of its teaching, as recommended by FME (2007) favours the use of ICT facilities like computer, CD-Rom, and video clips.

Besides, JS 1 is the foundation class for Junior Secondary School section where the knowledge of integrated social studies approach is assumed to have remained at cognitive level.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2. 1 Introduction

In this chapter, previous research works and other related literature that assessed the impact of computer-assisted instruction on Students' academic performance were reviewed. The review was carried out to provide a frame work for some basic concepts and theoretical explanation of concepts that were fundamental to the study. Moreover, the review explored different works on the field of study with a view to determining the gap which this study will fill in terms of its contribution to knowledge. The review was therefore organized under the following sub-headings for easy referencing – Introduction, theoretical framework, conceptual framework which was further discussed under concepts of social studies conventional teaching method in Junior Secondary Schools, concept of achievement, retention and gender, concept of computer assisted instruction and importance of computer education in Junior Secondary Schools. Other sub-themes include the teaching of social studies in Junior Secondary Schools, the use of Computer Assisted Instruction in the teaching of Social Studies, review of related empirical studies, need for a change in teaching strategy in Social Studies, and summary of review of related literature.

2.2 Theoretical Framework of the Study

The theoretical framework of this research hinges on the following theories of learning:

a. The Operant Conditioning Model and Stimulus Response (SR), Associated Theory

b. Theories of forgetting (Ausubel D. P. 1968)

c. Theories of Anchored Instructions and

d. Cognitive Apprenticeship Theory

2.2.1 The Operant Conditioning Model and Stimulus Response Associated Theory

In a school setting, the frequency of various behaviours can be seen as depending on the immediate consequences of those behaviours. For example, if a social studies student performs very well in an examination and he is rewarded with praise or gift or any other motivating factor, he will tend to repeat his performance. According to Stoner (1982), the Operant Conditioning process may be expressed as stimulus – response – consequences → future response.

The above means that the individual's own voluntary behavior (response) to a situation or event (stimulus) is the course of specific consequences outcomes. If a teacher uses a technique or strategy that is more understandable by the student, he will tend to have interest and retention in that subject. If the teaching method or technique is difficult to understand, the individual student will tend to loose interest or avoid such subject. This suggests that if a social studies teacher wants to arouse his students' interest in the subject; he must use a strategy or method, which can arouse students' interest and retention, which may improve their performance thereby making

learning to be attractive or interesting. Such technique or strategy includes the use of Computer Assisted Instruction.

Watson (1980) in his experiment illustrating infants' behavior, says; give me a dozen of healthy infants well formed and my own specific task is to bring them up to any desirable specialist of choice, be it engineer, doctor, lawyer, artist, merchant, radiographer, surveyor, business tycoon regardless of their talents, traits, tendencies, abilities, vocation, race or even ancestry. The Operant Conditioning Theory by B. F. Skinner was highly acclaimed to be effective in training lower animals, human beings as specially young people and can be applied in the present study as the use of Computer for instruction can improve student's interest in the subjects.

2.2.2 Theories of Forgetting (Ausubel, D. P. 1968)

Ausubel in 1968 came up with the above theory, which emphasized that if learners should remember all they have learnt, their conscious minds would be active and adjustment to new situations would be difficult. This according to him is because new experiences tend to interfere with old, either directly or indirectly. The theory of interference stipulates that non-reinforcement of an experience displaces that experience with new one. However, one observes that learning Social Studies with appropriate instructional strategy or techniques helps to build up appropriate experience. New experience builds on the old ones. Teachers can note the essence of repletion, revision and previous knowledge in improving learners' performance in subjects like Social Studies.

Theories of forgetting operate in the following ways:

2.2.3 The Concepts of Retroactive and Proactive Inhibition

Recall may be retroactive or proactive according to circumstances. For example, when two similar patterns of behavior are learnt simultaneously or successively, at recall of either, there is likely to be a potent competition between them at conscious level. At recall of the first intrusions, the second may interfere (retroactive); at recall of the second intrusions, the first may interfere (proactive). This is what happens when a child learns. The use of Computer Assisted Instruction efficiently can enhance both concepts. This unconscious anagram is a confusion of cognitive scheme and it is perhaps responsible for large incidence of forgetting (Odiase, 1992).

The teachers of Social Studies can make use of computer Assisted Instruction in teaching of Social Studies by applying the concepts of proactive and retroactive inhibitions to teach the subject in such a way that it brings improvement upon the performance of the students. The use of CAI by the teachers can make teaching of Social Studies vivid.

2.2.4 Changes in Attitudes Intersect and Cognitive Structure

Odiase (1992) and Francis (2003) have the same view that children will remember things from different angle depending on how at the moment the things were internalized. If however, above factors are constant, the learners might continue to remember the experience in its original structure. The teachers can use CAI very well in order to impart knowledge of Social Studies very well into the learners. Making learning interesting will change negative attitudes to positive attitudes in the learning of Social Studies.

2.2.5 Mental Set for a Given Activity

Betiky (2002) noted that when the mental set changes between the original learning and the time for recall, recall is more efficient. This is especially, so in verbal recall. Thus, all learning should have functional utility and should be reinforced from time to time by the teacher. This accounts for the recall for positive use of CAI in teaching and learning Social Studies. If as long time elapse before the impact of another experience, mental set shall be displaced, giving way to psychological paramnesis. Proper use of Computer Assisted Instruction by the Social Studies teacher certainly can improve upon students' performance.

2.2.6 Changes in Recall Situation

A student may not remember a name he learnt previously but when the bearer of the name is physically present, he may recall. Idialu (1998) and Ughamadu (1998) are in agreement with the above explanation. They identified the roles that instructional strategy can play in learning and teaching of subjects (like Social Studies) in secondary schools. This situation mostly applies to factual knowledge where recognition is much more difficult than recall.

The theory stipulates that an experience gained in one situation may be incompatible in another situation because of the absence of vital cues. Teachers can make teaching and learning of subjects like Social Studies more practical by using CAI, which make teaching, and learning vivid.

2.2.7 Repression

This is the theory of a protective device used for avoiding anxiety. Students may deliberately forget emotionally disturbing ideas. This happens when a student fails to recall, say, an unfavourable propaganda. Metabolic activities in the nervous system play some part in erasing memory trace from the system. Thus, if the functioning of metabolic system is deficient or inefficient, a process of nervous complication sets in, making recall difficult, which is in line with the view of Kaplasi (2000).

The author views worries and anxiety can have negative effect on learning from instruction in the area of pre-processing. He agreed that anxious learners divided attention between the demands of the task and pre-occupied themselves with negative thoughts. Teachers can help them to overcome emotional disturbing ideas through the use of repression. Frequent use of concept of repression is not advisable in teaching and learning situation.

2.2.8 Theory of Anchored Instructions

Anchored instruction is a major paradigm for technology-based learning that has been developed by the Cognitive and Technology Group of Vanderbrilt (CTGV, 1990) under the leadership of John Branford-cited in Ali (2004). While many people have contributed to the theory and research of anchored instruction, Branford is the principal spokes person and hence, the theory is attributed to him

The initial focus of the work was on the development of interactive video disc tools that encouraged students and teachers to pose and solve complex and realistic problems. The video materials serve as “anchor”

(macro-contexts) for all subsequent learning and instructions. As explained by (CTGV, 1993) as cited in Ali (2004), the design of these anchorer was quite different from design of videos that were typically used in education". The goal of using anchorers was to create interesting, realistic contexts that encouraged the active instruction of knowledge by learners. Anchorers were stories other than lectures and were designed to be explored by the students and teachers. Hence, learning and teaching around an anchor which should be instructional materials like Computer Aided Instruction or problem situations and curriculum materials should allow exploration by the teaching (Ali, 2004) and also related to the essence of using Computer Aided Instruction in the subject area concerned like Social Studies. Olaitan (2003) asserted that education is life long process, a continuous reconstruction, and reorganization of experience, which adds to the learning of experience and increase the ability to direct the course of future experiences. To this end, anchoring teaching and learning of Social Studies on the use of Computer Aided Instruction is derived from the need for the provision of basic functional and life long education to citizens. In consideration of the importance of instructional materials (in this case CAI tools), it is believed that under normal conditions, the objective of social studies education should be established with due reference to the ICT facilities available for their achievement. Ibe (2004) in line with the above concluded that an implementable curriculum of a course is one that provisions are made for adequate available materials and techniques for use in teaching and in encouraging learners to avail themselves of the variety of the instructional techniques like CAI in the environment.

In this study, when the CAI is used for instruction learning will be anchored on it and the achievement of the goals of teaching social studies will be enhanced.

2.2.9 Cognitive Apprenticeship Theory

Cognitive apprenticeship theory is a term for the instructional process in which teachers or more experienced or knowledgeable peers provide scaffolds to support learners' cognitive growth and development. Cognitive apprenticeship permits students to learn through their interactions, construct knowledge and share knowledge building experiences with the other members of the learning community Ali (2004). In effect, cognitive apprenticeship supports learning in a domain by enabling students to acquire, develop and use cognitive tools in authentic domain activity.

Computer Assisted Instruction as an ICT tool provides powerful new tools to support cognitive apprenticeships enabling groups to share online work spaces to collaboratively develop artifacts and intellectual products. They also make possible tele-apprenticeship, in which an expert is able to work with or mentor a student who may be thousands of miles apart. The theory has been applied in the context of constructing instructional materials for schools that focus on problem-solving skills. Febry and Higgs (1997) noted that using cognitive apprenticeship theory in learning, students taught using CAI as instructional materials may learn to

→ Reinforce verbal message of teachers;

→ focus more attention and become interested in the subject matter under study

→ Motivate interest necessary to understand the lesson

→ Provide sources of information and authority and

→ Provide experience not otherwise availed in another medium

The above views are what CAI can achieve and which the theory of cognitive apprenticeship is anchored.

2.3 Related Concepts to Computer Assisted Instruction (CAI)

The concepts which are presented below are related to the topic of investigation.

Computer

Computer has been defined as a calculator, machine, apparatus, mechanical, electrical or electronic equipment for carrying out especially complex calculations, dealing with numerical data or stored items of other information. A computer refers to a device which automatically performs operations, sorts files, edits, thus making it possible to process information with great speed, accuracy and reliability. It combines the efforts of the hardware, software and personnel to operate. According to Adesina (1998), computers are machines that capture data at source, record the data, prepare data, inform acceptable to the machine, perform processing requirements and communicate the results of the processing when so required.

The fifth generation computers are seen as having "artificial intelligence" and "thinking ability" as a result of its complexities and diversities.

Computer is very useful because of its numerous applications in our business and personal life. It is quite evident that the modern man is machine

dependent. This is because every where, computer has made out lives easier and much more comfortable.

In discussing issues of national economic development, Uwaji (2001) remarked that computer is all about seamless inter-connectedness and networking of people in a machine society. Computer can be used for the following:

Direct storage and retrieval of data, typing, formatting, editing, saving, e-mailing and printing. The computer is vital for internet connection. Other uses of computer include: typesetting of texts from drafts, letters, magazines and newspapers. In addition, the computer is used in correcting errors and proof reading. If computers are available in schools and used for aiding instruction in schools, learning will be interesting and permanent.

Telecommunications

Telecommunication is a vital engine of any economy. It is an essential infrastructure that promotes the development of other sectors such as agriculture, education, industry, health, banking, defence, transportation and the rigours of travel and rural migration. What must be said is that the available telecommunication systems are the key ingredient for promoting rapid socio-economic and political development of any nation, (Lecture note).

According to Ohakwe (2002), the telecommunications services to be offered in Nigeria include telephone, telex, cellular mobile telephone, radio/television, global mobile personal communication services (GMPCS), high speed transmission, business network services, computer networking, internet services, to mention but a few of them. Telecommunication services

(less than twenty years ago) were nearly written off in Nigeria since it was a social service with obsolete equipment across the country (Okwuanaso, 2004).

The urge world over is the reduction of the wide world to a global village through telecommunications. The situation in Nigeria is that of a place where low computer literacy is affecting the effectiveness of ICT. Effective telecommunications policy will impact on ICT resources such as the e-commerce, e-agriculture, internet services, computer operations, micro-electronic services and electronic banking with the new national policy for telecommunication. Networking and the virtual office are terms associated with telecommunication.

The virtual office suggests people working as if they were all in the same office when in the actual fact; they are spread about in many locations. With networks, e-mail, fax machines, telephones, video conferencing and centralized voice mail system are in place. When all or some of the above telecommunication services are provided for school use, the education sub-sector will be enhanced and improved, thereby making teaching and learning very attractive and enduring.

Internet

Globally, information and communication technology has been changing so dramatically in speed and performance that practitioners have rightly referred to the phenomena as a revolution. One of the most spectacular manifestations of this revolution is the internet.

The internet is the international network of computers. It is the global information pool as it links hundreds of nations, thousands of companies and

over fifty millions of computers, (Lecture handout). In many parts of the world, the internet is an indispensable tool for business, education, research, commerce, communication and technological development.

The internet often called the NET, has been variously described as the world's largest computer network, conglomeration of thousands of computer networks, the information super-highway and cyber space (Eyitayo, 1999). Physically, internet is a lot of computers and other communication devices and carriers. The internet exchanges, digitized data.

According to Eyitayo (1999), information is transmitted on the internet when a message is sent over the internet, Transmission Control Protocol (TCP) breaks the message down into more manageable smaller units called "packets" and attaches to each packet contains information which will enable it re-assemble and even check for errors at the receiving end. The Internet Protocol (IP) labels the various packets with information containing address as of their various destinations and puts the packets on the information highway. Each packet travels independently over the internet and may take a different part to arrive at its destination. Some of the remarkable features of internet include:

1. Real time information retrieval and transfer by transferring and retrieving in time of communication for such purposes,
2. Global Access – it can be accessed from anywhere in the world as long as connection to a local provider can be made,
3. The internet presents information in a user friendly mode by providing a very enabling environment for information dissemination.

4. Dynamic – Internet content is consistently updated to provide users with current state of the art, technologies and information.

Information and communication technologies are a major factor in shaping the new global economy and producing rapid changes in society. Within the past decade, ICT tools have fundamentally changed the way people communicate and do business. They have potential to transform the nature of education – where and how learning takes place and the roles of students and teachers in the learning process.

Teacher education institutions should assume a leading role in the transformation of education or be left behind in the swirl of rapid technological change. For social studies education programme to keep the full benefits of ICTs in learning, it is essential that basic ICT tools, skills and competencies are put in place for effective learning of social studies concepts. Social studies programme should provide leadership in determining how the new technologies can best be used in the context of culture, needs and economic conditions within the country. ICTs provide an array of powerful tools that may help in transforming the present isolated, teacher centred and text-bound classrooms into rich, student-focused interactive knowledge environments. To meet these challenges, schools must embrace the new technologies and appreciate ICT tools for learning. The problem now is how are the ICT tools and facilities available in schools for their use.

2.4 Social Studies as a Curriculum Area in Junior Secondary Schools

Social studies as curriculum area is dynamic. Social studies is a subject that deals with man in society. It emphasizes the influences which

environment has on man and vice-versa. According to Famirang (2004:52-55), social studies education programmes tries to explore the relationships between man, science and technology or physical environment.

In another way, it tries to see how human beings are related to one another. That is, the way they behave or react to the behaviour of their other fellow human beings, their daily activities, beliefs, traditions customs and their total ways of life in a given environment referred to as culture.

By nature, social studies adopt two major approaches in its curriculum, namely interdisciplinary and multi-disciplinary. Interdisciplinary approach of social studies simply refers to the blending of two or more subject areas and studies as one. For example, political-economy or social-anthropology simply refers to the blending of politics and economics to give political economy or sociology and anthropology to give social-anthropology as the case may be; whereas multi disciplinary approach refers to the efforts made to take advantage of concepts, methods of inquiry and conceptual schemes from many disciplines, bringing them into combination deemed useful to the curriculum developer (Wronski, 1981).

Basically, social studies education attempts to get the learner see the reality of issues and problems around him, be these social economic, scientific or technological and how he can solve such personal or societal problems. In essence, the subject lends itself more readily for the teaching of any emerging issue or phenomenon in a society.

Admitting that social studies is meant for understanding that there are many tested mechanisms for action to correct or ameliorate conditions and that

it is to get children dislike cruelty and injustice as well as developing inclination and skills to carry out thought into deed that the federal government (2004) introduced social studies curriculum into Junior Secondary Schools for human resource development. Already, there are a number of TV programmes for children which could perfectly be integrated into the nation social studies curriculum for students' education. These programmes get children abreast of current issues in the society as well as developing critical thinking in children.

Equally important, the programmes develop in children deep feelings of love toward one another and hate for wicked and unbecoming behaviours. Unfortunately, these programmes are organized mostly for children in private schools where only privileged children attend. Whatever behaviour and attitude developed here is later swallowed up by the corrupt majority population in the society and who according to Famirang (2004) are products of the public schools. Continuing, the author noted that some relevant topics such as ethnic studies, people and their environment, socialization, culture, social issues and problems, national unity and integration, science technology and society, family, communication, community, national economy, health issues, peace and conflicts and world issues among others are already included in the Junior Secondary Social Studies Programme. What is indeed needed are properly trained, motivated committed teachers and the facilities for effective implementation.

2.5 Conventional Teaching Method of Social Studies in Junior Secondary Schools

Teaching has been defined in many ways by different authors. Akudolu (1994) defined teaching as a deliberate effort by a mature or experienced person to impart information, knowledge, skills and so on to an immature or less experienced person through a process that is morally and pedagogically acceptable. Fadare (2004) defined teaching as the action of someone who is trying to assist others to reach their fullest potentials in all aspect of development. Anunnu and Oyetubo (2004) defined teaching as an attempt to assist students in acquiring or charging some skill, knowledge, ideas, attitude or appreciation. Owoso (2005) stated that the aim of teaching is to facilitate learning, stressing that there are many teaching methods and techniques used by teachers in teaching their students.

Various authors have listed many teaching methods and techniques or strategies that are used in teaching different subjects like Social Studies at the secondary schools. However, the study will only discuss lecture method, demonstration method, and project method, which are commonly used by teachers in teaching Social Studies in secondary schools.

For a teacher to communicate a topic from a subject matter, he needs to decide how to go about it. He must select one or more ways or methods of doing so effectively. Teaching methods are the techniques adopted and used by teachers in transferring learning in a classroom teaching learning process. A lecture method is often used by teachers of Social Studies in secondary schools.

Lecture Method

Lecture method according to Nwafor (2006) is a planned talk intended to supply information to meet a specific objective. Ogwa (2002), states that lecture method of instruction is the process of speaking to students while they sit and listen to the teacher. He emphasized that in lecturing method, the teacher acts as a conference organizer while the students listen as the audience. Lecturing is the most traditional teaching method. From Plato's academy to the modern university, knowledge has been transmitted orally for over 2000 years. Although, the original Socratic Method required a dialogue between teacher and student, the lecture as it was developed in the medieval university did not (lecture note). Bligh (1993) observes that originally, lecturing was the only way that knowledge stored in the books could be transmitted to a larger number of students.

The word "Lecture" is delivered from the Latin legere meaning to read. Bligh (1993), states that many centuries after the invention of movable type and other significant advances in technology, lecturing continue to be primary mode of instruction in secondary schools as well as in higher education. According to the author, reasons for lecture methods popularity are not hard to advance. This according to him is because lectures are cheap since teachers can lecture in auditorium full of students. Lectures are easily changed and updated and they are efficient in covering material quickly. Finally and perhaps most important, the method is familiar to students and teachers alike and their roles are clearly defined.

However, in Nigeria schools today, lecture method is still the most frequently used method of teaching. But in Junior Secondary Schools, lecture method is not supposed to be so frequently used at that level of education. Unfortunately, some teachers make use of the method in teaching. The educational technology grant program of the Academic Information Technology Advisory Committee (2006) stressed that presenting a lecture without pausing for interaction with the students can be ineffective regardless of the teacher's skill as a speaker. The committee further disclosed that the use of pauses during lecture for direct oral questioning creates interaction between teachers and students.

Unfortunately, when classes are large, the teacher cannot possibly interact with all the students at each point. The learning effectiveness of lecture method has been questioned as a means of reaching a large group at one time with a condensed, organized body of information providing students with lesson objectives before the lecture will enable them listen more efficiently learning the objectives rather than writing fervently throughout the lectures.

The lecture method becomes effective when the teacher lessons lasts for a few minutes at a time and is interspersed with questions and answers, discussions, brainstorming quiz sessions, etc. lecturing is also used with visual, diagrams, outlines, story telling, posters and object lessons, amongst others.

The increasing effect of globalization and the rapid rate of technological changes in the world have informed the recommendation of UNESCO and

ILO (2002) that all systems in the 21st century should be geared towards life-long learning. This requires that schools should in addition to academic skills, inculcate values to the citizens such as problem solving, collaborative skills and higher order thinking skills in order to increase the student's flexibility and adaptation to societal norms which will make them adaptable to the present and envisage changes in the world (Paris, 1998 and Hallak and Poisson, 2000). This challenge therefore necessitates a shift from instructional approaches based on the behavioural learning theories to those rooted in cognitive psychological learning theories of which the Computer Assisted Instructional approach is one (Udo, 2005). Udo explained that the cognitive psychological learning theories focus more on what goes on inside the learner's mind during the learning process and that they are very effective in improving the learner's problem solving and thinking skills. The CAI approach fosters deep understanding and improves cognitive achievement and retention of learning in several subjects like Social Studies. Another teaching method is the demonstration method.

Demonstration Method

Nwachukwu (2001) described demonstration method of instruction as one of the very effective methods applied by the teacher in achieving objective learning in real life situations. Nwachukwu noted that a demonstration method usually involves a process in which the learner follows a manner.

Demonstration method according to Ogwa (2002) is often used to teach fundamental operation of content in a system. He opined that demonstration method and lecturing can explain the steps of an operation or of an experiment

while performing them. Demonstration method of teaching is mostly used in teaching practical works for skill acquisition. For example, in the teaching of activities in the family like sweeping of compounds, cooking different diets or food and washing clothes, the demonstration methods is apt.

Demonstration method of instruction according to Nwachukwu (2001) is one of the very effective methods applied by the teachers in achieving objective of learning in real life situation like the art of fishing in occupation of family members among others. Its success is based upon imitation as a factor in learning and is well known that imitation is natural instinct which figured greatly in all types of education.

In using demonstration method for instruction, Okoro (1999) pointed out that for demonstration to be effective, the teacher should:

1. Plan the demonstration
2. Prepare students for the demonstration
3. Carryout the demonstration process and re-state the important point connected with it.

The demonstration as performed by the teacher according to Erikson (1998) is unfailing in developing and maintaining interest among students for the following reasons:

- There is an appeal to the sense of vision
- Skillful performance in hand manipulations always attracts attention
- Students see immediate progress as a result of effort and
- A desire is aroused to emulate the work of the teacher

Demonstration can be carried out in the class or class demonstration or done in groups as group demonstration and can also be an individual demonstration.

It is possible for students to learn how to perform manipulative operations by reading or being told how to do them. However, they can learn faster and more effectively when they are shown how the work is done. Demonstration enhances students' rate of comprehension of specific objectives.

Project Method

The project method at the same time is one of the teaching methods for the teaching of Social Studies. It is a means by which students develop independence and responsibility and practice social democratic modes of behavior. Project method is suitable for large groups, small group and individual instruction (Okoro, 1999, Ukoha and Eneogwe 1996).

Ukoha and Eneogwe, explained that the project method of teaching originated in the early twelfth century. It was greatly influence by Dewey's problem method of teaching and it is an original work of W. H. Kill Patrick who advocated purposeful activity, problem solving and the needs and interest of the individual child in action, learning and conduct. The underlying principle of the method according to them is that learning takes place through direct contact with materials. A project method implies a practical problem, which a student and the teacher plan to execute.

The planning and the executing must be concrete in nature. It should involve the design, arrangement of materials, availability of equipment and

tools and a good environment for the activity. On the part of the teacher, he/she must have an excellent understanding of the individual after learning has taken place. The execution should meet the following objectives: to encourage the individual, to assist the individual for specific changes. It is a learning activity selected, planned, designed and executed by learners collectively or individually to clarify facts, acquired new knowledge, skills, appreciation and to solve identified problems under the teacher's guidance and supervision. Therefore, the role of the teacher in providing guidance and direction to students should not be completely eliminated. This is because students tend to exaggerate their power of execution and to select project that are beyond them leading to the production of crude projects which defeat the purpose of the project method.

In summary, conventional teaching methods are teacher centred approach of learning. It is the methods constantly used in teaching many subjects including Social Studies in secondary schools but to meet the globalization demand, a modern teaching method such as Computer Assisted Instruction (CAI) should be explored for use in teaching the Social Studies subject if it will yield good effect.

2.6 Concept of Performance, Retention and Gender

Academic performance according to Larin theory (1965) as presented by Okereke (2005), refers to some methods of expressing a student's scholastic standing. This can be regarded as a source or subject grade, an average for a group of subjects in a programme of study for example, Social Studies. The theory further stresses, that there are two dimensions to academic

performance namely; good and poor performances. Good academic performance leads to success while poor academic performance leads to failure. Each of these two performances are experienced by students in one form or the other.

In this study, any student who scores between 50 and 100 out of the obtainable 100 works will be considered to have a good academic performance while those who will score between 0 and 49 will be considered to have poor academic performance. Tella (2007), states that a number of motivational processes are involved in performance. The processes are intrinsic motivation, which is based on internal factors such as self-determination, curiosity, challenges and effort, and secondly extrinsic motivation which involves external incentives such as rewards and punishment. Some students (e. g. Social Studies students) study hard because they are internally motivated to perform high standards in their work (intrinsic motivation) while other students study hard because they want to make good grades or avoid parental disapproval (extrinsic motivation). To make good grades, students have to retain what they have learnt.

Retention

According to Momoh-Oke (1997) retention is viewed as the repeat performance by a learner of the behavior than an acquired piece of knowledge which is always intended to elicit in the learner (without practice) after an interval of time. Retention simply refers to how much a person remembers after an interval of time without practice and that it is the difference between what is initially learnt and what is later forgotten. Haynie (2003) defines

retention as learning which lasts beyond the initial testing and is assessed with tests administered two or more weeks after the information has been taught and tested. Haynie further explained that retention of learning is measured with two tests: The initial test and the delayed retention test. The initial test is the test employed at the time of instruction or immediately thereafter while the delayed retention tests are those tests administered two or more weeks after instruction and initial testing to measure retained knowledge.

Okoye (2004) investigated the effect of teaching methods (stimulation and lecture) on academic retention of students in geography. The study was a quasi-experimental design. The data collected were analyzed using one way analysis of variance and two way analysis of covariance. The hypotheses were tested at 0.05 level of significance level. The results show that the students taught using simulation method has significantly higher retention ability than those taught using lecture method.

Some empirical researches have been conducted which bear relevance to the present study on gender issues. Gender is the sex of an individual either male or female.

Maduabum (1995) studies the relative effectiveness of expository and guided discovery methods on students' achievement in biology. The study used SSI (42 males and 40 females) students in a non-randomized, pre-test-post-test control group design. Analysis of the result showed that there was no significant difference in the performance of male and female students exposed to the expository and guided discovery methods.

Abonyi (1998) used 119 (55 males and 64 females) JSS 3 students to study the effect of an Intro-science based instructional package on students' conception of scientific phenomena and interest in science. The result of the study revealed that the Intro-science-based package has no significant difference on concept formation among males and females. In another stated study Iloputaife (2001) used 186 (86 males and 100 females) SS I students to investigate the effect of analogy and conceptual change in instructional models on physics achievement. The result of the study showed no significant difference in the achievement of male and female physics students. This was due to the constructivist and conceptual instructional model used in the study.

From the above revealed empirical studies on gender, one could understand that most studies carried out using constructivist approaches often tend to close the gap between male and female comprehension of scientific concepts. Though some areas of the studies indicated some considerable differences in the performances of boys and girls; for example in the views of Njoku (1993) gender effect on performance seemed to have significant difference due to the subject's cultural beliefs and partially due to the mode of instructional strategy.

2.7 The Importance of Computer Education in Secondary School

The importance of introducing computer education in secondary schools cannot be over-emphasized. However, some of the benefits of such inclusion are:

- To expose the learner to the uses of modern computer in our everyday life.

- To help the learner to develop knowledge and skills in basic computer processes.
- To enable our young people to acquire an intelligent understanding of the increasing application of computer in modern information and communication technology.
- To develop basic understanding of concepts, principles and operation and their application in everyday problems
- To inculcate in the learner computational skills and creativity in computer related programmes in education, science and technology to train people who can occupy important positions in public and private enterprises in Nigeria and to establish an appropriate framework for positive mobilization of the society in computer education towards a quick realignment in modern information and communication technology.

Apart from the above, computer education is capable of creating and providing self employments to the teeming population. Besides, it will put to an end the endless note taking by students in the classroom. Moreover, Computer Assisted Instruction (CAI) will become fully operational in our schools. It will strengthen record keeping in schools and other public and private offices.

2.8 The Use of Computer Assisted Instruction in Teaching of Social Studies

The CAI programme started in 1986 by a single lecturer who recognized the pedagogical opportunity presented by a small classroom in

Oslon Hall and a closet full of unused Apple Compilers (Encarta, 2009). The programme has grown steadily since then. Currently, the composition programme is offered in classroom. CAI programme are developed in various subject areas in mathematics, sciences, social sciences, administration and liberal arts. Several computer study course have existing CAI programme.

In a well equipped computer classroom and with proper training, instructors can do everything they could do in a standard classroom, but the computers allow them to accomplish many additional goals that would otherwise be difficult or impossible.

Projection screens enhance demonstration and allow for shared screen work; local network servers facilities paper transfer of files; access to internet can turn each seat into library; and online conferencing can stimulate active, written participation by every student several works are being initiated by students and lecturers in university, polytechnics and colleges of education such as development of ICT-based software (course ware) and its application in teacher education in Nigeria by Essien, Ogunleye, Adeoye (2007).

The use of English language for Junior Secondary School by Alo (2003), Adebayo (2005) on child centred play therapy with computer simulation did animated and effect to improve teaching and learning by computer in primary school. CAI is defined by many authors in many ways. Encarta (2009) defined CAI as diverse and rapidly expanding spectrum of computer technologies that assist the teaching and learning process.

CAI refers to instruction or remediation presented on a computer CAI includes tutorial software, drill and practice software and simulation. Other

instructions category includes Computer Managed Instruction (CMI), Computer Assisted Testing (CAT) and Test Banking).

CAI uses instructional or educational software known as courseware to aid classroom instruction. Information that helps teaching or encourages interaction can be presented on computers in the form of text or in multi-media formats, which include photographs, video, animations speech and music. A Computer Assisted Instruction (CAI) lesson can be taught by tutorial, drill and practice or simulation software. The guided drill is a computer programme that poses questions to students, returns feedback and selects additional questions based on the students' response. Recent guided drill systems incorporate the principle of education in addition to subject matter knowledge into the computer performance.

Computer also can help students visualize objects that are difficult or impossible to view e.g. human anatomy. Computer programmes are interactive and illustrate a concept through attractive animation, sound and demonstration. They allow students to progress at their own pace and work individually or problem solved in a group. Computer provide immediate feedback, letting students know whether their answer is correct, if the answer is wrong the programme shows students how to correctly answer the question, computers offer a different type of activity and a change of pace from teacher-led or group instruction.

Computer Assisted Instruction improves instruction for students with disabilities because students receive immediate feedback and do not continue to practice the wrong skills. Many computer programmes can move through

instruction at the students pace and keep track of the students' errors and progress. Computers capture the students' attention because the programmes are interactive and engage the students' spirit of competitiveness to increase their scores. Also Computer Assisted Instruction moves at the students' pace and usually does not move ahead until they have mastered the skill. Programmes provide differentiated lessons to challenge students who are at risk, average or gifted.

The best way to make learning more concrete is to make use of real object (Akinwale, 2004). In some situation, real objects may either be two large or complex that hidden details are obscured. This situation arises in the study of basic concepts and contents of social studies. For example the teaching of physical environment their features and influences, teaching and learning must be brought down to the learner's level using CAI animation, colours, photographs and audio. This is what the study tends to do, and encourage retention.

2.9 The Need for a Change in Teaching Strategy in Social Studies

A lot of factors have necessitated the need to change teaching strategy or method in social studies. Among these are the effects of globalization and the rapid rate of technological changes and the need to address individual differences most seriously in the classroom. Teaching and learning process should be student centred and one way to bring about a change of emphasis in teaching from the teacher diverted approach to a facilitated approach is to change the method of instruction (Kearsley, 2000). This shows that Social Studies education need total overhaul in terms of package and medium of

instruction. Teachers should utilized appropriate strategy to pass across knowledge and enhance achievement, interest and retention. That is, teachers should consider every topic and select the correct method that will convey the knowledge at a particular time to the students.

According to Neekpoa (2007), Nigeria is saddled with educational problems of great magnitude, which the traditional methods of teaching and learning alone cannot solve. Roegge, Wenthing and Bragg (1996) stressed that the traditional approach of delivery of knowledge and skill through lecture must be improved or even abandoned and replaced with methodologies which allow students to learn needed skill in the context within which the skills are used in the real world. With the recent tend in globalization and crises ridden societies, which require crises resolution strategies there is need for social studies students in Junior secondary schools to be well informed of what is happening in other societies, other families or different cultures for sharing of ideas on how certain crises situations in different societies or culture were handled for adaptation, in solving related problems in Nigerian cultures. For this to be achieved, there must be a change in the conventional/lecture methods or techniques adopted in teaching students to a more fascinating strategy that could enhance good performance.

This study therefore adopted the use of computer assisted instruction as an alternative technique in the teaching of social studies in Junior Secondary Schools.

2.10 Review of Related Empirical Studies

In a study carried out by Akudolu (1998) on computer assisted language learning as a teaching mode for promoting students interest in French language in Enugu Educational Zone of Enugu State. The researcher adopted a quasi-experimental study involving the use of non-equivalent control group design. In the study, a French language interest inventory (FLII) which comprised of thirty five (35) items aimed at revealing the degree of each student's interest was used. The population for the study comprised all the 450 JSSIII students doing French language and a sample of 62 students were sampled 32 students were assigned to experimental school and 30 students in control school. Pretest and posttest were administered to two set of intact groups: the control and the experimental groups.

Pearson Product Moment Correlation Coefficient was used which the hypotheses were tested with one way analysis of variance. The result revealed that the students taught using computer Assisted Language Learning (CALL) showed a lot of interest in French language throughout the period of the experiment. It was also revealed that mode of instruction had no significant effect on the interest rating of the student. The performance of CALL did not vary with interest. The reviewed work closely related to the present study in such that both were tackling how to improve the problem of learners' poor performances using computer Assisted device. The population was about the same while the sample size was close enough. But the work did not consider the level of retention of the student which will show their achievements. This study will apt for that.

Okereke (2005) examined the impact of the electronic calculators on cognitive achievement and overall development of the Nigerian learners' mathematical abilities in speeded and difficult arithmetic problems. The study was quasi-experimental study group design and methodology adopted a pre-test – post test control group design. The research constituted two equivalent groups; the control and experimental groups. The experimental group was taught with electronic calculator while the control group was taught without calculators using the conventional teaching methods. The data were analyzed descriptively using mean and standard deviation while chalk board method, t-test statistics were used to compare the mean performance scores of the pupils who were in the experimental and control groups respectively.

The result concluded that the group taught mathematics without electronic calculator performed significantly better than the group taught mathematics with calculator. In this work the class of the learners was not indicated however, it can be concluded that the learners had already acquired some principles in calculation and were able to do that well without calculator. This can be possible because of their ability to retain what were taught them in the past about calculating.

Nwoji (2000) carried out a quasi-experimental research on improving the teaching and learning of introductory technology through the use of media. The study compared the effectiveness of video taped instruction and audio taped instruction in introductory technology class. The study involved all the junior secondary school (JSS I) students in Nsukka Urban education zone of Enugu State. Out of the six secondary schools, two were randomly selected for

the study. Four hundred and seventy two (472) JSSI students were randomly selected using balloting techniques. The data analysis used for the study was mean and t-test. The instrument for data collection was a teacher made 20-item multiple choice questions with graphic presentations based on types and function of wood work and metal work equipment/materials. Two groups (A and B) were used. Group A was taught with video taped instruction (VTI) while students on Group B were taught with ATI (Audio taped instruction).

The treatment lasted for four (4) weeks. The pretest was conducted two days before the treatment started while the post-test was conducted at the end of the experiment. The total mean scores for the video taped instruction is 123 and audio taped instruction is 71. This shows that students who received their lectures under video taped instruction performed better than their counterparts who were taught with audio taped instruction. In this work there were more involvement of the senses in VTI than in ATI which helped retention of the lesson taught and led to better performance.

Ademulegun (2003) in his research work found out that male students performed better not only in computer studies but also in most science related courses. Iloputaife (1995) carried out a study on the effect of guided discovery and exposition method of task presentation among class three secondary school physics students. The sample was 120 class three students at Enugu state educational zone. The design of the study was a pre-test – post-test 2 x 2 factorial, one-way analysis of variance. Thirty (30) multiple-choice questions were used for the study. The major findings of the study were that:

a. There is significant difference between the mean achievement of secondary school physics students taught using guided discovery and exposition method in the achievement test (with discovery method being more effective).
b. There is a significant difference between the mean achievement of male and female secondary school physics students in the achievement test.
c. Females exposed to discovery method achieved better than males that are treated with expository method.

Ratimen (2005) studied the effect of different teaching methods on students' performance in mathematics. It was a case study of schools in Lagos Mainland Local Education District. The population consisted of all the JSS 3 students in Lagos Mainland Local Education District. He used random sampling to select 40 students each from five schools making a total of 200 students. Research instrument was diagnostic test. He divided the students into two groups and taught group A with discovery teaching method and taught group B with laboratory method. He administered pretest and post test to the students. The result revealed that the method of teaching affected the performance of the students positively. Still in the same study, the students taught mathematics with laboratory method performed better with 63 mean, while those taught with discovery method had performance mean of 45. The overall result showed that there was positive correlation between the method of teaching and the performance of the students.

However, the two methods of teaching, laboratory and discovery are interactive and students are expected to participate full in the teaching learning process. This can work for better performance in student.

The above related review of empirical studies have relevance to the present study in terms of the method and design to be adopted, the population used and the scope of the study covered.

2.11 Summary of the Review of Literature

So far, the review presented a moderate analysis of studies that relate to the framework for some basic concepts that are fundamental to the study. Moreover, the review explored different works on the field of study with a view to determining the gap which this study will fill in terms of contribution to knowledge. In the review, the theoretical framework used included operant conditioning model and stimulus response (SR) associated theory; theories of forgetting, theories of anchored instruction and cognitive apprenticeship theory. Other review done covered the following conventional teaching method in Junior Secondary Schools, concept of achievement, retention and gender, concept of computer assisted instruction and importance of computer education in Junior Secondary Schools and review of related empirical studies. In the view of the reviewed authors, it was revealed that students performed better when exposed to activity based approach than those students taught with conventional method of teaching alone. It was also revealed that in some subjects, there are gender influences while in others there are not, there are gender issues which, is quite inconclusive.

In the review of empirical studies some result findings on the use of computer assisted instruction, academic achievement of some subjects (not social studies), gender influence in achievement, interest and retention were outlined and discussed. From the study on CAI, research has shown that learning behavior of students of various ability groups is affected by the method of teaching used.

However, the effect of the use of CAI on learning outcomes of students in Social Studies is yet to be determined and ascertained. It is clearly from the review of literature that computed assisted instruction has been used in languages, mathematics, physics and simulation such as acrobatics among others but not yet in Social Studies.

However, in the works reviewed, both theoretical and empirical gender issues and understanding of concepts in the works were found to have not been exhaustively dealt with since controversies still exist among male and female students who understand the subject matter of the subjects covered better in view of the method used in imparting knowledge. It is important to note that the works involving understanding of basic concepts by students in the works reviewed were more in theoretical frame work than in empirical studies. It therefore, became necessary that the present study be embarked on to investigate the impact of computer Assisted Instruction (CAI) on students academic performance and retention in Social Studies.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter is presented and discussed under the following sub-headings. Research Design, Population for the study, Sample and Sampling Techniques, Instrument for Data Collection, Validity of Instruments, Reliability of the instruments, method of data collection, experimental procedures and method of data analysis.

3.2 Research Design

The study was conducted using quasi-experimental design. Specifically, the pre-test post test, non-equivalent control group design was used. This implies that, intact classes (non-randomized groups) participated in the study. According to Sambo (2005) and Ofor (2000), quasi-experimental research design permits the use of intact classes. This design was adopted because it was not possible for the researcher to randomly sample the subject and assign them to groups without disrupting the academic programme and the time table of the secondary schools involved in the study. Also, the purpose of the study was to carry out an experiment using a control and experimental intact classes to find out the academic performance of students in social studies using the Computer Assisted Instruction (CAI).

Hence, the design was considered quite suitable for conducting the study. The design is illustrated below. Table 3.1

Table 3.1: Research Design Illustration

E	O_1 X_1 O_2 → O_3
C	O_1 X_2 O_2 → O_3

Where E = Experimental group

C = The control group

X_1 = The treatment (computer Assisted Instruction)

X_2 = Conventional Teaching Method (no treatment)

O_1 = Pre-Test

O_2 = Post-Test

O_3 = Retention test

3.3 Population of the Study

The target population for this study consisted of all JSS one students in public junior secondary schools in Enugu State, Nigeria. The junior secondary schools were selected based on those that have operational computer facilities. In this case, the population of the students comprised of 6383 (See table 3.2 below). The profile of the students used for the study shows that they were not entirely computer compliant, and had just finished primary six (6) before entering into Junior Secondary Schools. They all passed the Competitive Entrance Examination which qualified them for entry into Secondary Schools.

Table 3.2

Population of Students in JSI in the Public Secondary School in Enugu State, Nigeria

S/N	Name of School	JSS ONE			
		Pop of Male students	Pop. Of Female Students	Total Pop. Of Students	Remarks
1.	Queens' School, Enugu	-	420	420	Girl's School
2.	G. T. C., Enugu	218	100	318	Co-edu
3.	Urban Girls' S. S., Enugu	-	331	331	Girls' School
4.	City Girls' S. S., Enugu	-	88	88	Girls' school
5.	CISS, Iva-Valley	30	65	95	Co-edu
6.	Colliery Comp. S. S., Ngwo	134	150	284	Co-edu
7.	Metropolitan G. S. S., Enugu	-	241	241	Girls' school
8.	Coal Camp S. S., Ogbete	56	84	140	Co-edu
9.	Govt., Sec. Sch., Abakpa	81	89	170	Co-edu
10.	Independent Layout J.S.S, Enugu	48	72	120	Co-edu
11.	New Layout J.S.S., Enugu	47	60	107	Co-edu
12.	Trans-Ekulu G.S.S., Enugu	-	376	376	Girls' school
13.	New Haven G.S.S., Enugu	-	211	211	Girls' school
14.	New Haven B.S.S., Enugu	294		294	Boys' school
15.	National Grammar Sch., Nike	356	-	356	Boys' school
16.	C.I.C., Enugu	497		497	Boys' school
17.	Union Sec. Sch., Awkunanaw	332		332	Boys' school
18.	Girls' High Sch., Awkunanaw	-	427	427	Girls' school
19.	Uwani S.S., Enugu	100	140	240	Co-edu
20.	Idaw River G.S.S., Enugu	-	307	307	Girls' school
21.	New Estate B.S.S., Enugu	193	-	193	Boys' school
22.	C.S.S., Obeagu, Awkunanaw	29	40	69	Co-edu
23.	C.S.S., Obunofia, Awkunanaw	24	48	72	Co-edu
24.	Community Sec. Sch., Ugwuaji	20	38	58	Co-edu
25.	Army Day Sec. Sch., Awkunanaw	122	220	342	Co-edu
26.	C.S.S. Ndiagu Amechi	14	30	44	Co-edu
27.	Community Sec. Sch., Awkunanaw	98	153	251	Co-edu
	Total			**6,383**	

Source: Post Primary School Management Board, Enugu, 2009 December

3.4 Sample and Sampling Technique

Eight co-educational Junior Secondary Schools with the JSSI students numbering 1,482 were purposively sampled for the study. According to Nwana 2005, if the population of a study is a few thousands, a 10% sample or more will do… Therefore, 23% of the population was randomly selected for this study. The schools sampled include Government Technical College (GTC), Government Secondary School Abakpa, Army Day Secondary School Awkunanaw, Community Secondary School Akwuke, all in Enugu State were randomly assigned to experimental group. While Independence Layout Junior Secondary School, Coal Camp Secondary School Ogbete, Community Secondary School Obeagu Awak, Community Secondary School Obuofia Akw, in Enugu State, Nigeria, were also randomly assigned to control group. The choice of the schools was because they shared similar characteristics like student type, (co-educational), number of streams per class, computer sets (not in all schools) and presence of qualified social studies teachers who are computer compliant. In each of the Junior Secondary School sampled, JSSI student were used for the study as their curriculum contains the topic "Physical and Social Environment" where the use of computer components was recommended for use in teaching the students. To sample the classes used for the study, one stream of JSS one each was randomly sampled from each school. The streams sampled according to schools were also randomly assigned to experimental and control groups.

The streams allocated to the groups were as follows:

Table 3.2 – Sample Size of Streams of Schools according to Groupings and Class Size

	School Name	Population		Total
		Female	Male	
Experimental Group	GTC, Enugu	49	19	68
	JSS 1^{A}, Government S.S., Abakpa,	27	15	42
	JSS I^{C}, Army Day J.S.S. 1^{a},	31	14	45
	Akwuke JSS 1^{B}	28	10	38
		135	58	193
Control Group	Independence Layout Junior Sec. Sch, Enugu JSS 1^{C}	35	14	49
	Coal Camp S.S. JSS 1^{A} C.S.S.,	28	14	42
	Obeagu Awk., JSS 1^{A} C.S.S.,	31	24	55
	Obuofia, JSS 1^{B}	28	20	48
		122	72	194

In this study therefore, JSS one students totaling 193 constituted the sample in the experimental group and 194 JSSI students constituted the sample in the control group. The sample size chosen above agrees with the view of Eboh (2009, 54-55) who states that a common quasi-experimental design uses two or more groups – one serving as control group and the other as study group – but the subject in both groups have not been randomly selected or allocated and the number in each group should be manageable. In his own view in support of the small size of the sample, Akuezuilo (2002, 58-59) noted that quasi-experimental studies allows small number of subjects for easy management of the variables involved in the studies. With this, the number of the students in each class was manageable. It is important to note that the distance between the experimental and the control schools were fairly far to the range of 1km to 2kms or more apart. The schools are located in Enugu North, South and Central Local Governments.

3.5 Instrumentation

The following instruments were used for data collection:

1. Social studies achievement test (SSAT)
2. Social Studies Computer Assisted Instruction Package (SSCAIP)
3. Lesson plans (Appendices B and C)

The SSAT test is a 30 item of multiple-choice nature.

The 30 questions were used for pre-test while the sample questions were re-numbered for post-test and retention test respectively. Each question had four options A, B, C and D.

The multiple items were drawn from the JSSI syllabus using table of specification covering the six content areas on physical environment Appendix I, used for the study. The questions were developed by Examination Development Centres; Enugu, Awka, Umuahia and Abakaliki for 2004, 2005, 2006 and 2007 Junior Secondary Certificate Examination for social studies, but were lifted and adopted by the researcher.

3.6 Validation of the Instrument

Content Validation

The (SSAT) achievement tests were past Junior Secondary School Social Studies Examination developed by Enugu, Awka, Abakaliki and Umuahia Examination Development Centres. They were validated by the Examination Development Centres of each State which were the original test developers but were lifted on permission for the study. (EDC – Awka, Enugu, Abakaliki and Umuahia 2004 – 2007). Only those item questions on physical environment were lifted. The SSCAIP was already validated by the original

test developers, Esien, Ogunleye and Adeoye (2007). Together with the lesson plans were validated by two experts from the Department of Education of Ahmadu Bello University, (ABU) Zaria.

3.7 Reliability of the Instruments

The trial test of the SSAT achievement test was carried out using test-retest reliability techniques. The instrument was administered on a class of 48 students at Coal Camp Junior Secondary School, Enugu in Enugu State but was not used for the study. The reliability co-efficient was determined using Pearson Product Moment Correlation Coefficients which determined the suitability of the instrument for the study, and it yielded a coefficient value of 0.73.

3.8 Method of Data Collection

The teachers administered the pre-test to the experimental and control groups in their respective schools. In the pre-test, the Social Studies Achievement Test (SSAT) was administered on the groups. Objective question sheets (Appendix A) were provided for the students to fill in the correct answers for the SSAT. The researcher marked the sheets of the SSAT to obtain the students' scores on cognitive achievement before the treatment. The exercise provided baseline data on students' achievement in physical environment, a unit in social studies curriculum before the treatment. This involved slotting the compact disc containing the content of the physical environment for students' learning into the computer and booting procedure followed: Multi-media machine projected the lesson on screen. The students' attentions were drawn to the screen.

During the post-test, teachers administered the post-test to the experimental and control groups in their respective schools. In the post-test, the SSAT was administered on the groups. Objective question sheets were provided for students to fill in the correct answers for the SSAT. The researcher marked the sheets of the SSAT to obtain the students' scores on cognitive achievement after the treatment. After two weeks, a test for retention of learning was conducted for both groups and the scores collected in order to determine the extent of retention of learning of the two groups. The raw scores of the test are presented in appendix G. Teachers were used in the study as research assistance:

- To make the students' feel at home.
- To make the learning environment natural especially with the environmental procedure.
- Teachers were used because they are the people the will use computer assisted instruction as teaching aids in teaching of social studies.

In fact the teachers' in experimental schools have better changes of taking off from there in using CAI in teaching social studies without much problem on how to start.

Treatment of the Experimental Group

The experiment commenced with the administration of pre-test to both the experimental and control groups. Teachers administered the pretest to groups in their respective schools. In the pretest, the Social Studies Achievement Test (SSAT) was administered in groups. The exercise provided baseline data on students' achievement in social studies before the treatment.

After the pretest, a period of training on the use of social studies Computer Assisted Instruction package developed by the researcher was given to the experimental group by the class teacher who is computer compliant. The package contains eight weeks interactive tutorial lessons on the physical environment covering topics, like types of environment, features of physical environment, resources in the environment and causes of environmental problems among others. A compact disc which contains basic facts on the topic, physical environment, extracted from internet and Microsoft Encarta DVD (2007, 2009) was slotted into the Computer and booting procedure followed. The students were instructed to pay attention because they would be asked from what they learned watching the computer screen (Appendix C). The control group was taught with the conventional plan (Appendix B) on chalkboard using explanation, demonstration etc as was demanded. The treatment lasted for eight weeks.

The post-test was administered to all the treatment groups immediately after the completion of the treatments. The teachers administered the post-test to both the experimental and control groups in their respective schools. In the posttest, the Social Studies Achievement Test (SSAT) was administered on the groups. The exercise provided post treatment data on students' achievement in social studies after treatment. After two weeks, a test for retention of learning was conducted for both groups and the scores collected and collated in order to determine the extent of retention of learning of the two groups. The same post-test questions were used for the retention test but the option were re-numbered or changed. Students were not informed ahead of time for the post-

test exercise. The students were only made to watch the computer and take note of the contents of the lesson as they appear on the screen. The aim is that as the students watch these features in their natural state, it makes the lesson clearer and interesting. The participation of the students was minimal since that was not a computer lesson class, rather the computer was used to teach social studies to draw students' attention, help them to understand the lesson faster and perform better.

Control of Extraneous Variables

Experiment Bias

In order to avoid experimental bias, the regular class teachers in the practicing schools taught their own students in both the experimental and control groups. The researcher was not directly involved in the administration of the instrument, rather was supervising.

Teacher Variable

In order to ensure that errors which might arise from teacher variable would not affect the findings of the study, the researcher organized one week (seven days) training for all the participating teachers. This was to ensure uniformity of instruction across the groups. Detailed explanation was given to the teachers by the researcher prior to the commencement of the experiment. (See Table 3.4). The lesson plans and the SSCAIP were prepared by the researcher and not the teachers. These packages were not released to the teachers before the commencement of the experiment. Lesson plan/note and computer software packages were uniform in all the participating schools. This was supervised by the researcher when the experiment commenced. The

students in the two groups were not informed that they would be involved in any research process.

Subject Interaction

The researcher did not use experimental and control groups from the same school. This ensured that teachers in two (2) groups do not mix up to exchange experiences obtained from the experiment. This eliminated likely errors that might arise as a result of subject interaction. Out of the eight (8) schools used for the study, four (4) schools were used for experimental group while the remaining four (4) schools were used as control group.

Inter Group Variables

Since the participating teachers might differ in instructional competence and the design of the study used non equivalent groups (i.e. non-randomization), it was assured that the initial equivalence would be achieved between the treatment and the control groups. That is, the group taught using CAI and taught using conventional methods.

Table 3.4
One week training plans for all the participating teachers and students

Days	Activities
1-2	Full details about the research was given to all participating teachers e.g. topic, aim, objective, purpose of the study, benefit of the study, the body of knowledge it would contribute to the nation, area of the study, population, instrument used
3	Training on the use of computer e.g. booting of computer, use of keyboard, use of mouse and opening of files and how to save typed work
4	Moving from one menu to another, printing of typed work and shutting down the computer.
5	Use of social studies instructional package to teach students (experimental group) use of lesson plan to teach students (control group)
6-7	Revision on the general topics, micro teaching by teachers.

NB: Both experimental and control groups teachers were trained separately by the researcher (1st group between 8-12 noon and 2nd group between 1-5 pm on the same day)

The researcher had already developed packages for the experimental and control groups. During the pre-experimental workshop, separate workshops were organized for the teachers in the experimental and control groups in their individual schools. This was to establish a uniform teaching standard among the teachers in the school.

To start the experiment, CD was slotted in to the CD-Rom and booting procedure was followed. The multi-media machine projected the lesson on screen. The students used one computer set as arranged with the school authority for the lesson and there were evaluation questions at the end of every lesson.

At the beginning of the experiment, the instruments were administered on pre-test-post-test basis by the trained teachers in the experimental and control groups. Scores of the students on the pre-test were kept by the researcher for use at the end of the experiment.

Treatment was given to sampled students in the schools used as experimental group by using the SSCALP while teachers in the school used as control group taught the students with the lesson plan. The teaching lasted for four (4) weeks. After the treatment, post-test was conducted on both groups to find their performances and their scores were recorded. After 2 weeks of post-test, the same test was used on the groups to find their retention ability.

The pretest and post-test scores were kept separately for the two groups and were used to answer the research questions and test the hypotheses that guided the study.

3.9 Method of Data Analysis

The descriptive statistics such as mean and standard deviation were used to analysis the research questions while T-test and analysis of variance (ANOVA) were used for testing the hypotheses at 0.05 level of` significance. Since the research involved pre-test and post-test of intact classes, the statistical techniques adopted for analyzing the hypotheses were T-test and ANOVA. According to Uzoagulu, 1998, ANOVA would be used when samples and groups are more than two. In terms of teacher effectiveness, the pretest was used as the covariate while the post-test was used as the dependent variable.

Scoring of the Instrument

A score sheet was developed by the researcher to record scores of each intact class in both treatment and control groups. For correct answer for any item, a score of one (1) mark was awarded, for wrong answers in a question a score of zero (0) mark was awarded.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSIONS

4.1 Introduction

This chapter presents the results of the data analysis and discussions for the study. The presentation was organized according to the research questions and null hypotheses that guided the study.

4.2 Research Question

Research Question 1: What are the mean achievement scores of students taught social studies using Computer Assisted Instruction (CAI) and those taught using the conventional teaching method?

The mean of Pretest and Post-test were calculated to determine the scores in social studies achievement test.

Table 4.1: Mean of Pre-test and Post-test scores of Experimental and Control Groups in Social Studies Achievement Test.

Group	No of Cases (N)	Pre-Test		Post-Test		Mean Gain
		$\bar{x}$	SD	$\bar{x}$	SD	
Experimental Group	193	2.403	1.96	15.28	4.794	8.66
Control Group	194	1.923	2.04	12.21	5.199	6.77

The data presented in Table 4.1 shows the experimental post-test mean scores as 15.28 with standard deviation of 4.79 and a control mean scores of 12.21 with standard deviation of 5.19. On the other hand, experimental pre-test mean score of 6.62 with a standard deviation of 2.403 and a control pre-test mean score of 5.44 with a standard deviation of 1.92 making a post-test gain of 8.66 for experimental group as against 6.77 for control group. The answer to the research question 1 is that students taught social studies with CAI approach had mean scores of 15.28 with 4.79 standard deviation and a

mean gain of 8.66 unlike the students taught social studies with conventional method who had mean score of 12.21 and standard deviation of 5.19 and a gain of 6.77. This means that the experimental group performed better than the control group.

Research Question 2: What are the mean scores of students taught social studies with Computer Assisted Instruction (CAI) approach and those taught using the conventional teaching methods in the test for retention of learning?

The achievement scores of experimental and control groups in Post-test and test for retention of learning in social study were calculated to determine which group retained more of the lesson.

Table 4.2 Achievement scores of experimental and control groups in the achievement post-test and test for retention of learning in social Studies Achievement Test.

Group	No of Cases (N)	Post-Test		Retention Test	
		$\bar{x}$	SD	$\bar{x}$	SD
Experimental Group	193	40.51	1.23	35.97	1.07
Control Group	194	20.16	1.33	15.42	1.26

Table 4.2 above shows that students in the experimental group taught social studies with Computer Assisted Instruction (CAI), had a post-test mean achievement scores of 40.51 and a mean achievement score of 35.97 in the test for retention of learning, while the students in the control group taught social studies with conventional teaching method had a post-test mean score of 20.16 and a mean achievement score of 15.42 in the test for retention of learning. The answer to the research question 2 was that student taught social studies using CAI approach, had a post test mean achievement scores of 40.51 and a mean achievement score of 35.97 in the test for retention of learning, while

those in control group taught social studies, using Conventional Teaching Method had a score of 20.16 and a mean achievement score of 15.42 in the test for retention of learning. The result showed that students taught social studies with CAI retained their learning better than those taught with the conventional teaching method. The reason for this result could be attributed to the fact that as an innovation, it is capable of motivating and increasing the interest of students in the lesson.

Research Question 3: What are the comparative mean scores of boys and girls taught using the CAI approach in social studies academic achievement test? The mean scores of Pre-test and Post-test of boys and girls taught social studies using CAI were compared to determine the higher scores.

Table 4.3: Mean of pre-test and post-test scores of boys and girls taught social studies using Computer Assisted Instruction (CAI) in the achievement test.

Group	N	Pre-Test		Post-Test		Mean Gain
		$\bar{x}$	SD	$\bar{x}$	SD	
Boys	130	5.30	1.01	40.63	1.25	35.33
Girls	257	5.00	1.37	40.21	1.38	35.21

The data presented in table 4.3 above indicates that boys taught social studies in the experimental group with Computer Assisted Instruction (CAI) had a mean achievement score of 5.30 in the pre-test and mean achievement score of 40.63 in the post-test making a pre-test, post test mean gain of 35.33 while the girls taught social studies with Computer Assisted Instruction had a mean score of 5.00 in the pretest and a mean score of 40.21. In the post-test making the pre-test, post-test mean gain of 35.21. The answer to the research question 3 is that boys taught social studies with CAI approach had mean

scores of 40.63 with 1.25 standard deviation and a mean gain of 35.33 while the girls taught social studies with CAI had a mean score of 40.21 with standard deviation 1.38 and a mean gain of 35.21. With this result, boys taught social studies with Computer Assisted Instruction (CAI) performed slightly better than girls taught social studies with the same CAI in the achievement test. This could be attributed to the fact that in matters like this, most boys could be more determined to understand the mystery of the application of the use of computer. This is because they are more enduring and painstaking to practice what taught to them.

Research Question 4: What are the comparative mean scores of boys and girls taught social studies using computer Assisted Instruction (CAI) in the test for retention of learning?

The mean scores of boys and girls taught social studies with CAI in the Post-test and the test of retention of learning were also calculated to the retention calculated to the retention in their lesson.

Table 4.4: Mean of boys and girls taught social studies with Computer Assisted Instruction (CAI) in the a84hievement post-test and test of retention of learning.

Group	No of Cases (N)	Post-Test		Retention Test	
		$\bar{x}$	SD	$\bar{x}$	SD
Male (Boys)	130	40.63	1.30	36.26	1.35
Female (Girls)	257	40.21	1.21	35.26	1.30

The data presented in table 4.1.4 show that boys had a mean achievement score of 40.63 in the posttest and a mean score of 36.26 in the test for retention of learning. The girls also had a mean achievement score of 40.21 in posttest and a mean score of 35.26 in the test for retention of learning. The answer to the research question 4 is that the male taught social studies

with CAI approach had a mean score of 36.26 with 1.35 standard deviation while the girls taught social studies using CAI approach had a mean score of 35.26 and standard deviation of 1.30 both in the test for retention of learning. The result indicates that boys taught social studies performed better than girls taught social studies in the test for retention of learning.

Research Question 5: What are the Comparative Mean Scores of Boys in each School Taught Social Studies using CAI?

The mean scores of boys in each school taught social studies using CAI was compared to determine which school scored higher.

Table 4.5 Mean of Boys in each School Taught Social Studies Using CAI

	N	Minimum	Maximum	Mean	Std Deviation
Post-test	130	3	24	13.58	5.414
Pretest	130	2	14	5.92	2.261
Retent	130	8	28	18.97	6.027
Valid N List wise)	130				

The data presented in table 4.5 shows that the pretest mean score as 5.92, post-test as 13.58 and retention as 18.97. This result indicates that the boys did not perform equally.

Research Question 6: What are the comparative mean scores of girls in each school taught social studies using CAI.

The mean scores of girls in each school taught social studies using CAI was compared to determine which school scored higher.

Table 4.6 Mean of Girls in each School Taught Social Studies Using CAI

	N	Minimum	Maximum	Mean	Std Deviation
Post-test	257	4	25	13.77	5.143
Pretest	257	2	14	6.06	2.241
Retention	257	8	29	19.81	5.877
Valid N List wise)	257				

The table 4.6 shows the pretest mean score of the girls as 6.06, the post-test as 13.77 and the retention of 19.81. The result indicated consistence in their performance.

Analysis of variance (ANOVA) was employed. In analyzing the data, the Pretest-Post-test contrast is treated as a within-subjects factor and the groups as a between-subjects factor. Since the within-subjects factor has only one degree of freedom.

4.3 Hypotheses Testing

Within-Subjects Factors

Measure: MEASURE_1

Post-pre	Dependent Variable
1	Post-test
2	Pre-test

$H0_1$ - There is no significance difference between the mean scores of students taught social studies using Computer Assisted Instruction and those taught social studies using conventional teaching methods.

4.7: Tests of Within-Subjects Contrasts

Between-Subjects Factors

		Value Label	N
sex	1	Boys	130
	2	Girls	247
group	1	Exp	183
	2	Control	194

Table 4.7a: Summary for the test of significance between the mean scores of experimental and control groups taught social studies using Computer Assisted Instruction (CAI).

Measure: MEASURE_1

Source	Post-pre	Type III Sum of Squares	Df	Mean Square	F	Sig.
postpre	Linear	10032.359	1	10032.359	1162.352	.000
postpre * sex	Linear	.050	1	.050	.006	.940
postpre * group	Linear	128.683	1	128.683	14.909	.000
postpre * sex * group	Linear	10.456	1	10.456	1.211	.272
Error(postpre)	Linear	3219.395	373	8.631		

Tests of Between-Subjects Effects

Measure: MEASURE_1
Transformed Variable: Average

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Intercept	65917.428	1	65917.428	3103.475	.000
Sex	.504	1	.504	.024	.878
group	707.604	1	707.604	33.315	.000
sex * group	11.078	1	11.078	.522	.471
Error	7922.475	373	21.240		

Tests of Within-Subjects Contrasts

It is the interaction term that is of most interest in this analysis, and it is significant. It indicates that the pre-post difference is not the same for experimental and control groups. This means that hypothesis 1 should be rejected following an F-value of 14.909 and P-value of 0.00 ($P<0.05$). From the result of the analysis, students taught using CAI performed better than

those taught using conventional method. To further investigate the interaction, one can compare the difference between pretest and posttest for the two groups.

Result showing difference between pretest and posttest for experimental groups

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Post-test	15.28	183	4.794	.354
	Pretest	6.62	183	2.403	.178

Paired Samples Test

		Paired Differences					T	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		Mean	Std. Deviation	Std. Error Mean
		Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper
Pair 1	Post-test – Pretest	8.661	4.042	.299	8.072	9.251	28.990	182	.000

Result showing difference between pretest and posttest for control groups

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Post-test	12.21	194	5.199	.373
	Pretest	5.44	194	1.923	.138

Paired Samples Test

		Paired Differences					T	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		Mean	Std. Deviation	Std. Error Mean
		Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper
Pair 1	Post-test – Pretest	6.763	4.251	.305	6.161	7.365	22.161	193	.000

As can be seen, while the (smaller) pre-post difference is significant for the control, the larger pre- post difference lies with the experimental group.

Simple Comparison of the Difference Scores

We could simply compute Post minus Pre difference scores and then compare the two groups on those difference scores. Here is the output from the comparison.

Group Statistics

	group	N	Mean	Std. Deviation	Std. Error Mean
diff	exp	183	8.6612	4.04167	.29877
	control	194	6.7629	4.25063	.30518

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	Lower	Upper	Lower	Upper	Lower	Upper	Lower
Diff	Equal variances assumed	3.942	.048	4.438	375	.000	1.89832	.42771	1.05731	2.73932
	Equal variances not assumed			4.445	374.975	.000	1.89832	.42708	1.05855	2.73808

The difference between the post and pre test was computed and t-test was employed in analyzing the difference obtained for the experimental and

control groups. The analysis shows significant difference in favour of experimental group. This result has further given impetus to the earlier data to prove that hypothesis one should be rejected in favour of the experimental group.

$H0_2$ - There is no significant difference between the scores of students taught social studies using computer-assisted instruction (CAI) approach and those taught social studies using conventional teaching method in social study test for retention of learning.

Data from retention test was also analysed using t-test. The result of analysis is presented in the following tables.

Group Statistics

	group	N	Mean	Std. Deviation	Std. Error Mean
Retent	exp	183	22.56	3.492	.258
	control	194	16.65	6.331	.455

Table 4.7b: Summary of the test of significance between the mean scores of experimental and control groups.

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	Lower	Upper	Lower	Upper	Lower	Upper	Lower
Retent	Equal variances assumed	112.231	.000	11.127	375	.000	5.908	.531	4.864	6.952
	Equal variances not assumed			11.302	304.020	.000	5.908	.523	4.879	6.937

The test result led to the rejection of null hypothesis two following an obtained T-value P-value of 11.127 and P-value of 0.00 (P<0.05). The rejection is in favour of experimental group, with a mean retention score of 22.56 for experimental group and 16.65 for control group. With this result, this significant difference between the mean scores of students taught social studies using Computer Assisted Instruction and those taught using conventional teaching methods in the test for retention.

$H0_3$: There is no significant difference between the mean scores of boys and girl taught social studies using Computer Assisted Instruction (CAI) approach.

Group Statistics

	sex	N	Mean	Std. Deviation	Std. Error Mean
diff	boys	130	7.6538	4.50101	.39476
	girls	247	7.7004	4.12499	.26247

Table 4.7c: Summary for the significance between the mean scores of boys and girls taught social studies using Computer Assisted Instruction (CAI).

Independent Samples Test

		Levine'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	Lower	Upper	Lower	Upper	Lower	Upper	Lower
diff	Equal variances assumed	2.342	.127	-.101	375	.920	-.04656	.46139	-.95379	.86067
	Equal variances not assumed			-.098	243.324	.922	-.04656	.47405	-.98033	.88722

Hypothesis three was also tested using t-test on the difference between postest and pretest The t-test result reveals a t-value of -.101 and p-value of 0.92, leading to non rejection of the hypothesis. The null hypothesis should be upheld.

The result of the data analysis by gender did not show any significant difference.

$H0_4$: There is no significant interaction effect of CAI and conventional methods of teaching given to students and their gender with respect to their mean scores in social studies.

Group Statistics

	sex	N	Mean	Std. Deviation	Std. Error Mean
Retent	boys	130	18.97	6.027	.529
	girls	247	19.81	5.877	.374

Table 4.7d: Summary for test of significance of mean scores of boys and girls taught social studies using Computer Assisted Instruction (CAI) in the test for retention of learning.

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	Lower	Upper	Lower	Upper	Lower	Upper	Lower
Retent	Equal variances assumed	.997	.319	-1.302	375	.194	-.836	.642	-2.100	.427
	Equal variances not assumed			-1.292	256.709	.198	-.836	.647	-2.112	.439

Hypothesis four was analysed by applying t-test analytical tool on data obtained on retention data. The null hypothesis was not rejected since a t-value of -1.302 and P-value of 0.194 was obtained. Showing that boys and girls did equally well.

$H0_5$: There is no significant difference between the mean scores of boys in each school taught social studies using CAI.

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1942.774	7	277.539	50.488	.000
Within Groups	670.649	122	5.497		
Total	2613.423	129			

In order to ascertain where the significance lies between schools, Scheffe multiple comparison test was further employed on the data. The result of the analysis reveals the existence of three subsets. The first subset comprises Government Technical College. This is followed by the second subset comprising Community School Obunofia, Independence Layout Secondary School, Army Day Secondary School and Community Sec. School Akwuke. The last subset comprises Government School Abakpa and Community School Obe and Coal Camp Secondary School.

Multiple Comparisons

Dependent Variable: diff
Scheffe

	(J) sch	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
		Lower Bound	Upper Bound	Lower Bound	Upper Bound	Lower Bound
govt schl abakpa	Coal camp sec. school	-.10952	.87128	1.000	-3.4385	3.2194
	COMMUNITY SEC.SCHOOL AKWUKE	-5.26667(*)	.95718	.000	-8.9238	-1.6095
	COMMUNITY SEC.SCH. OBUOFIA	-9.61667(*)	.80083	.000	-12.6765	-6.5569
	ARMY DAY SEC.SCH.AWK.	-4.82381(*)	.87128	.000	-8.1528	-1.4948
	COMMUNITY SEC.SCH. OBE	.36667	.77170	1.000	-2.5818	3.3152
	GOVT TECHINICAL COLLEGE	-8.36140(*)	.80981	.000	-11.4555	-5.2673
	ind layout sec sch	-5.10952(*)	.87128	.000	-8.4385	-1.7806
Coal camp sec.school	govt schl abakpa	.10952	.87128	1.000	-3.2194	3.4385
	COMMUNITY SEC.SCHOOL AKWUKE	-5.15714(*)	.97075	.001	-8.8662	-1.4481
	COMMUNITY SEC.SCH. OBUOFIA	-9.50714(*)	.81701	.000	-12.6288	-6.3855
	ARMY DAY SEC.SCH.AWK.	-4.71429(*)	.88617	.001	-8.1002	-1.3284
	COMMUNITY SEC.SCH. OBE	.47619	.78848	1.000	-2.5364	3.4888
	GOVT TECHINICAL COLLEGE	-8.25188(*)	.82582	.000	-11.4071	-5.0966
	ind layout sec sch	-5.00000(*)	.88617	.000	-8.3859	-1.6141
COMMUNITY SEC.SCHOOL AKWUKE	govt schl abakpa	5.26667(*)	.95718	.000	1.6095	8.9238
	Coal camp sec.school	5.15714(*)	.97075	.001	1.4481	8.8662
	COMMUNITY SEC.SCH. OBUOFIA	-4.35000(*)	.90806	.003	-7.8195	-.8805
	ARMY DAY SEC.SCH.AWK.	.44286	.97075	1.000	-3.2662	4.1519
	COMMUNITY SEC.SCH. OBE	5.63333(*)	.88247	.000	2.2616	9.0051
	GOVT TECHINICAL COLLEGE	-3.09474	.91599	.133	-6.5945	.4051

	ind layout sec sch	.15714	.97075	1.000	-3.5519	3.8662
COMMUNITY SEC.SCH. OBUOFIA	govt schl abakpa	9.61667(*)	.80083	.000	6.5569	12.6765
	Coal camp sec.school	9.50714(*)	.81701	.000	6.3855	12.6288
	COMMUNITY SEC.SCHOOL AKWUKE	4.35000(*)	.90806	.003	.8805	7.8195
	ARMY DAY SEC.SCH.AWK.	4.79286(*)	.81701	.000	1.6712	7.9145
	COMMUNITY SEC.SCH. OBE	9.98333(*)	.70986	.000	7.2711	12.6956
	GOVT TECHINICAL COLLEGE	1.25526	.75112	.901	-1.6146	4.1251
	ind layout sec sch	4.50714(*)	.81701	.000	1.3855	7.6288
ARMY DAY SEC.SCH.AWK.	govt schl abakpa	4.82381(*)	.87128	.000	1.4948	8.1528
	Coal camp sec.school	4.71429(*)	.88617	.001	1.3284	8.1002
	COMMUNITY SEC.SCHOOL AKWUKE	-.44286	.97075	1.000	-4.1519	3.2662
	COMMUNITY SEC.SCH. OBUOFIA	-4.79286(*)	.81701	.000	-7.9145	-1.6712
	COMMUNITY SEC.SCH. OBE	5.19048(*)	.78848	.000	2.1779	8.2031
	GOVT TECHINICAL COLLEGE	-3.53759(*)	.82582	.015	-6.6929	-.3823
	Ind layout sec sch	-.28571	.88617	1.000	-3.6716	3.1002
COMMUNITY SEC.SCH. OBE	govt schl Abakpa	-.36667	.77170	1.000	-3.3152	2.5818
	Coal camp sec. school	-.47619	.78848	1.000	-3.4888	2.5364
	COMMUNITY SEC.SCHOOL AKWUKE	-5.63333(*)	.88247	.000	-9.0051	-2.2616
	COMMUNITY SEC.SCH. OBUOFIA	-9.98333(*)	.70986	.000	-12.6956	-7.2711
	ARMY DAY SEC.SCH.AWK.	-5.19048(*)	.78848	.000	-8.2031	-2.1779
	GOVT TECHINICAL COLLEGE	-8.72807(*)	.71998	.000	-11.4790	-5.9772
	Ind layout sec sch	-5.47619(*)	.78848	.000	-8.4888	-2.4636
GOVT TECHINICAL COLLEGE	govt schl Abakpa	8.36140(*)	.80981	.000	5.2673	11.4555
	Coal camp sec. school	8.25188(*)	.82582	.000	5.0966	11.4071
	COMMUNITY SEC.SCHOOL AKWUKE	3.09474	.91599	.133	-.4051	6.5945
	COMMUNITY	-1.25526	.75112	.901	-4.1251	1.6146

	SEC.SCH. OBUOFIA					
	ARMY DAY SEC.SCH.AWK.	3.53759(*)	.82582	.015	.3823	6.6929
	COMMUNITY SEC.SCH. OBE	8.72807(*)	.71998	.000	5.9772	11.4790
	Ind layout sec sch	3.25188(*)	.82582	.037	.0966	6.4071
Ind layout sec sch	govt schl Abakpa	5.10952(*)	.87128	.000	1.7806	8.4385
	Coal camp sec. school	5.00000(*)	.88617	.000	1.6141	8.3859
	COMMUNITY SEC.SCHOOL AKWUKE	-.15714	.97075	1.000	-3.8662	3.5519
	COMMUNITY SEC.SCH. OBUOFIA	-4.50714(*)	.81701	.000	-7.6288	-1.3855
	ARMY DAY SEC.SCH.AWK.	.28571	.88617	1.000	-3.1002	3.6716
	COMMUNITY SEC.SCH. OBE	5.47619(*)	.78848	.000	2.4636	8.4888
	GOVT TECHINICAL COLLEGE	-3.25188(*)	.82582	.037	-6.4071	-.0966

* The mean difference is significant at the .05 level.

Table 4.7e: Summary for the test of significant difference between the mean scores of boys in each school taught social studies using Computer-Assisted Instruction (CAI).

diff

Scheffe

	N	Subset for alpha = .05			
Sch	1	2	3	4	1
COMMUNITY SEC.SCH. OBE	24	3.1667			
govt schl Abakpa	15	3.5333			
Coal camp sec. school	14	3.6429			
ARMY DAY SEC.SCH.AWK.	14		8.3571		
Ind layout sec sch	14		8.6429		
COMMUNITY SEC.SCHOOL AKWUKE	10		8.8000	8.8000	
GOVT TECHINICAL COLLEGE	19			11.8947	11.8947
COMMUNITY SEC.SCH. OBUOFIA	20				13.1500
Sig.		1.000	1.000	.076	.947

Mean for groups in homogeneous subsets are displayed.

a Uses Harmonic Mean Sample Size = 15.231.

b The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

In order to test hypothesis five. One-way analysis of variance was employed on the result obtained from difference between Posttest and Pretest score for the boys in different schools used for the study. The analysis gave rise to an F-value of 50.48 and P value of 0.000 (P<0.05), leading to the rejection of the null hypothesis. The ANOVA results are shown in the following tables. Showing significance difference in the group. So the group did not perform equally.

$H0_6$: There is no significant difference between the mean scores of girls in each school taught social students using CAI.

ANOVA

diff

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2986.298	7	426.614	85.000	.000
Within Groups	1199.532	239	5.019		
Total	4185.830	246			

The sixth hypothesis was also tested using one way analysis of variance on the result obtained from difference between Posttest and Pretest score for the girls in different schools used for the study. The analysis gave rise to an F-value of 85.000 and Pvalue of 0.000 (P<0.05). The ANOVA results are shown in the following tables

In order to ascertain where the significance lies between schools, Scheffe multiple comparison test was further employed on the data. The result

of the analysis reveals the existence of three subsets. The first subset comprises Government Technical College. This is followed by the second subset comprising Community School Obunofia, Independence Layout Secondary School, Army Day Secondary School and Community Sec.School Akwuke. The last subset comprises Government School Abakpa and Community School Obe and Coal Camp Secondary School.

Multiple Comparisons

Dependent Variable: diff

Scheffe

(I) sch	(J) sch	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
		Lower Bound	Upper Bound	Lower Bound	Upper Bound	Lower Bound
govt schl abakpa	Coal camp sec. school	.06349	.60426	1.000	-2.2244	2.3514
	COMMUNITY SEC.SCHOOL AKWUKE	-4.50794(*)	.60426	.000	-6.7959	-2.2200
	COMMUNITY SEC.SCH. OBUOFIA	-6.36508(*)	.60426	.000	-8.6530	-4.0771
	ARMY DAY SEC.SCH.AWK.	-4.54480(*)	.58974	.000	-6.7777	-2.3119
	COMMUNITY SEC.SCH. OBE	.93907	.58974	.923	-1.2939	3.1720
	GOVT TECHINICAL COLLEGE	-9.27350(*)	.56087	.000	-11.3971	-7.1499
	Ind layout sec sch	-5.50794(*)	.57383	.000	-7.6807	-3.3352
Coal camp sec. school	govt schl Abakpa	-.06349	.60426	1.000	-2.3514	2.2244
	COMMUNITY SEC.SCHOOL AKWUKE	-4.57143(*)	.59875	.000	-6.8385	-2.3044
	COMMUNITY SEC.SCH. OBUOFIA	-6.42857(*)	.59875	.000	-8.6956	-4.1615
	ARMY DAY SEC.SCH.AWK.	-4.60829(*)	.58408	.000	-6.8198	-2.3968
	COMMUNITY SEC.SCH. OBE	.87558	.58408	.944	-1.3359	3.0871
	GOVT TECHINICAL COLLEGE	-9.33700(*)	.55492	.000	-11.4381	-7.2359
	Ind layout sec sch	-5.57143(*)	.56802	.000	-7.7221	-3.4207
COMMUNITY SEC.SCHOOL AKWUKE	govt schl Abakpa	4.50794(*)	.60426	.000	2.2200	6.7959
	Coal camp sec. school	4.57143(*)	.59875	.000	2.3044	6.8385
	COMMUNITY	-1.85714	.59875	.217	-4.1242	.4099

	SEC.SCH. OBUOFIA					
	ARMY DAY SEC.SCH.AWK.	-.03687	.58408	1.000	-2.2484	2.1746
	COMMUNITY SEC.SCH. OBE	5.44700(*)	.58408	.000	3.2355	7.6585
	GOVT TECHINICAL COLLEGE	-4.76557(*)	.55492	.000	-6.8667	-2.6645
	Ind layout sec sch	-1.00000	.56802	.874	-3.1507	1.1507
COMMUNITY SEC.SCH. OBUOFIA	govt schl Abakpa	6.36508(*)	.60426	.000	4.0771	8.6530
	Coal camp sec. school	6.42857(*)	.59875	.000	4.1615	8.6956
	COMMUNITY SEC.SCHOOL AKWUKE	1.85714	.59875	.217	-.4099	4.1242
	ARMY DAY SEC.SCH.AWK.	1.82028	.58408	.211	-.3912	4.0318
	COMMUNITY SEC.SCH. OBE	7.30415(*)	.58408	.000	5.0926	9.5157
	GOVT TECHINICAL COLLEGE	-2.90842(*)	.55492	.000	-5.0095	-.8073
	Ind layout sec sch	.85714	.56802	.942	-1.2936	3.0078
ARMY DAY SEC.SCH.AWK.	govt schl Abakpa	4.54480(*)	.58974	.000	2.3119	6.7777
	Coal camp sec. school	4.60829(*)	.58408	.000	2.3968	6.8198
	COMMUNITY SEC.SCHOOL AKWUKE	.03687	.58408	1.000	-2.1746	2.2484
	COMMUNITY SEC.SCH. OBUOFIA	-1.82028	.58408	.211	-4.0318	.3912
	COMMUNITY SEC.SCH. OBE	5.48387(*)	.56904	.000	3.3293	7.6384
	GOVT TECHINICAL COLLEGE	-4.72870(*)	.53907	.000	-6.7698	-2.6876
	Ind layout sec sch	-.96313	.55254	.880	-3.0552	1.1290
COMMUNITY SEC.SCH. OBE	govt schl Abakpa	-.93907	.58974	.923	-3.1720	1.2939
	Coal camp sec. school	-.87558	.58408	.944	-3.0871	1.3359
	COMMUNITY SEC.SCHOOL AKWUKE	-5.44700(*)	.58408	.000	-7.6585	-3.2355
	COMMUNITY SEC.SCH. OBUOFIA	-7.30415(*)	.58408	.000	-9.5157	-5.0926
	ARMY DAY SEC.SCH.AWK.	-5.48387(*)	.56904	.000	-7.6384	-3.3293
	GOVT TECHINICAL COLLEGE	-10.21257(*)	.53907	.000	-12.2537	-8.1715
	Ind layout sec sch	-6.44700(*)	.55254	.000	-8.5391	-4.3549
GOVT TECHINICAL COLLEGE	govt schl Abakpa	9.27350(*)	.56087	.000	7.1499	11.3971
	Coal camp sec. school	9.33700(*)	.55492	.000	7.2359	11.4381
	COMMUNITY SEC.SCHOOL	4.76557(*)	.55492	.000	2.6645	6.8667

	AKWUKE					
	COMMUNITY SEC.SCH. OBUOFIA	2.90842(*)	.55492	.000	.8073	5.0095
	ARMY DAY SEC.SCH.AWK.	4.72870(*)	.53907	.000	2.6876	6.7698
	COMMUNITY SEC.SCH. OBE	10.21257(*)	.53907	.000	8.1715	12.2537
	Ind layout sec sch	3.76557(*)	.52162	.000	1.7905	5.7406
Ind layout sec sch	govt schl Abakpa	5.50794(*)	.57383	.000	3.3352	7.6807
	Coal camp sec. school	5.57143(*)	.56802	.000	3.4207	7.7221
	COMMUNITY SEC.SCHOOL AKWUKE	1.00000	.56802	.874	-1.1507	3.1507
	COMMUNITY SEC.SCH. OBUOFIA	-.85714	.56802	.942	-3.0078	1.2936
	ARMY DAY SEC.SCH.AWK.	.96313	.55254	.880	-1.1290	3.0552
	COMMUNITY SEC.SCH. OBE	6.44700(*)	.55254	.000	4.3549	8.5391
	GOVT TECHINICAL COLLEGE	-3.76557(*)	.52162	.000	-5.7406	-1.7905

* The mean difference is significant at the .05 level.

Table 4.7f: Summary for the test of significance difference between the mean scores of girls in each school taught social studies using Computer-Assisted Instruction (CAI).

diff

Scheffe

Sch	N	Subset for alpha = .05		
	1	2	3	1
COMMUNITY SEC.SCH. OBE	31	2.8387		
Coal camp sec.school	28	3.7143		
govt schl Abakpa	27	3.7778		
COMMUNITY SEC.SCHOOL AKWUKE	28		8.2857	
ARMY DAY SEC.SCH.AWK.	31		8.3226	
ind layout sec sch	35		9.2857	
COMMUNITY SEC.SCH. OBUOFIA	28		10.1429	
GOVT TECHINICAL COLLEGE	39			13.0513
Sig.		.912	.170	1.000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 30.429.

b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

The analysis showed that hypothesis was accepted. This means that there is consistency in performance of the group.

4.4 Summary of Major Findings

The following findings emerged from the study based on the analyzed data collected from the study.

1. Students taught social studies with Computer Assisted Instruction (CAI) had a higher mean achievement score than those students taught using the conventional teaching methods in their achievement test. This could be because the CAI is more lively and interesting. It is interactive and student centered. Students are exposed to relevant pictures to captivate their attention. Unlike the conventional teaching methods like discussion and lecture methods, which are boring and teacher-centered.
2. Students taught social studies with Computer Assisted Instruction (CAI) had a higher mean score than those students taught using the conventional teaching method in the test for retention of learning. This could be because students retain more of what they see and do. They also remember interesting activities.
3. The study revealed that boys taught social studies with Computer Assisted Instruction (CAI) had an equal mean score with the girls taught social studies using the same Computer Assisted Instruction

(CAI) in the achievement test. This means that equal treatment was given to them and they responded well.

4. Boys taught social studies with Computer Assisted Instruction (CAI) performed better than girls taught social studies with the same computer Assisted Instruction in the test for retention of learning. In matters like this, boys can be more determined to express their zeal on what they have learnt. The boys are more enduring and can go out anywhere to practice what was taught to them. This is because they are freer to go out at will to engage in computer training than the girls are. Therefore the chances of retention was more on the boys.

5. There was a significant difference between the mean scores of students taught social studies with Computer Assisted Instruction and those taught using conventional teaching method in the achievement test. It is likely that CAI enhances the students' interest which makes the lessons attractive and lively thereby making them to pay more attention.

6. There was a significant difference between the mean scores of students taught social studies with Computer Assisted Instruction (CAI) and those taught using conventional teaching method in the test for retention of learning. The use of CAI makes lesson interesting, as the lesson was interactive in nature making them to be attentive.

7. There was no significant difference between the mean achievement scores of boys and girls taught social studies with Computer Assisted

Instruction (CAI) in the achievement test. Equal treatment was given to the boys and girls and they responded well.

8. There was no significant difference between the mean scores of boys and girls taught social studies with Computer Assisted Instruction in the test for retention of learning. They were all attentive and their performance was quite good

4.5 Discussion of Results

The rapid innovations and increased complexity of today's world present new challenges which put demands on the education system. These challenges for improvement according to Nwoji (2003), could be successfully done by a shift in psychological and pedagogical theories from teacher directed approach to student-centred approach of instruction. The worth of any instructional exercise should be assessed on the basis of the quality of activity embarked upon by the students.

Passivity in the instructional process should not be encouraged since it will not be conducive to the atmosphere which the learner needs in order to work on himself/herself as is the pre-requisite for using computer assisted instruction in teaching process. Students' experimental result reveals that the greater part of the teacher's experimental time was spent by the dictates of the students' needs.

Analysis of students' achievement scores in social studies as a result of the use of computer assisted instruction approach showed mean score gains in favour of their respective post-test. The plausible explanation on the above findings is that the treatment indicates better performance of experimental

groups (i.e. those taught with Computer Assisted Instruction). This means that the way the teachers in the experimental groups taught the lessons, enables students to be more committed to their learning. The motivational drive of the use of Computer Assisted Instruction approaches enables them to take time and master what they learnt.

The data presented in table 4.1 provided answers to research question one. Findings revealed that students taught social studies with Computer Assisted Instruction (CAI) had a higher mean achievement score than those students taught using the conventional methods in the achievement test. In the same vein, analysis of variance was used to test the first hypothesis table 4.5 at the calculated T-value (14.909), significance of F (.000) and confidence level of 0.05, there was a statistically significant difference between the mean scores of the group taught with Computer Assisted Instruction (CAI) and those students taught using the conventional teaching methods in the achievement test.

The implication of this finding therefore is that Computer Assisted Instruction is very effective and can assist other approaches that are associated with conventional teaching methods in enhancing students' performance in social studies. This finding is similar to the findings of Odogwu (2002) who found that there was a significant difference in the mathematics achievement of experimental group taught with Computer Assisted Instruction and control group taught with conventional teaching methods in favour of the experimental group. Kulik, Bangert and Williams (1985) in their study on "Effects of Computer-Based Teaching on Secondary School Students" also

found out that the use of Computer Assisted Instruction in teaching electronics students improved their academic performance in the subject than students taught electronics with traditional instructional methods. Although, the subjects used above are science based subjects which may likely favour the use of computer, the result in social studies experimental group has given impetus to the use of Computer Assisted instruction in any other subject.

The finding is also in line with the assertion of Cotton (2001) who pointed out that the use of computer based learning procedures appears more result oriented than the conventional instruction. He concluded that student learning rate is faster with computer based learning than with conventional instruction.

In addition, analysis of variance was used to test hypothesis 4, table 4.7d. At the calculated T-value (-1.302), significance of F(0.193) and confidence level of 0.05, there was no significant interaction effect of treatment given to students and their gender with respect to their mean scores in the achievement test. The result showed that the effectiveness of treatments on students' achievement in social studies does not depend on the level of gender. Hence, there were no differential effects of treatments over levels of gender (male and female), which implies that Computer Assisted Instruction is more effective than conventional teaching methods in improving students' performance in social studies regardless of gender levels. The data presented in Table 4.2 provided answer to research question two. Findings revealed that students taught social studies with Computer Assisted Instruction (CAI) retained their learning better than those taught with the conventional teaching

methods. Analysis of variance was used to test the second hypothesis, table 4.7b at the calculated T-value (11.127), significant of F (0.000) and confidence level of 0.05, there was a statistically significant difference between the mean scores of the group taught with Computer Assisted Instruction (CAI) and those taught using the conventional teaching methods in the test for retention of learning. The findings indicate that Computer Assisted Instructions (CAI) is more effective in enhancing students' retention of learning in social studies than the conventional teaching methods.

Active engagement of students in the learning activities according to Cotton (2001) improves students' creativity, which enhances transfer of learning in new situation. The provision of active learning environment by the use of Computer based learning for teaching makes the students to engage in higher order thinking task such as analysis, synthesis and evaluation, which in turn improves students' cognitive achievement and also retention of learning.

The data presented in Table 4.3 provided answer to research question three. Findings revealed that boys and girls taught social studies using Computer Assisted Instruction performed well in the achievement test. However, analysis of variance of test of significance between mean achievement scores of boys and girls taught with Computer Assisted Instruction hypothesis three ($H0_3$) showed that Table 4.7c at the calculated T-value (-.1.01), significance of F(0.350) and confidence level of 0.05, there was no significant difference between the mean achievement scores of the boys and girls taught with Computer Assisted Instruction in the achievement test. The obvious implication is that the difference in the mean achievement scores

of male and female students taught social studies with Computer Assisted Instruction was due to a mere chance. In the same vein, the data presented in table 4.4 provided answer to research question four. Finding revealed that boys taught social studies performed better than girls taught social studies in the test for retention of learning. However, the analysis of variance in table 4.7d revealed that the difference in the mean scores of male and female students in the test for retention of learning was not found to be statistically significant ($H0_4$), T-value (-.1.302) and significance of F, which stood at 0.194.

In result of hypothesis 5, using one-way analysis of variance showed F-value 13.15 and P-value as 0.076. There was significant difference showing that the performance of the groups was not equal.

However, the analysis of hypothesis six gave rise to F-value 85.000 and P-value 0.000 showing no difference but consistency in the groups.

According to Brewer (2003), providing opportunities to interact with course materials through the use of computers and information technology tends to change the course from competitive endeavour to one that is more collaborative, student-centred and focused on the cognitive development and construction of knowledge in the students irrespective of their gender. The results of these findings as indicated in Table 4.2 which showed that students in experimental group taught social studies with CAI had a higher post-test mean achievement score than those in the control group, expressing that the use of Computer Assisted Instruction (CAI) helped to improve interaction

between the sexes hence the good performance of boys and girls in Social Studies.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary, conclusion and recommendations for the study.

5.1.1 Summary of Procedures used

The study was a pre-test – post-test non-equivalent control group, quasi experimental research design which determined the impact of Computer Assisted Instruction (CAI) in junior secondary school students' performance (achievement) and retention in social studies in Enugu State. Specific objectives of the study were to:

- Determine the achievement scores of students taught social studies with Computer Assisted Instruction (CAI) and those taught using the conventional teaching methods.
- Determine the level of retention of learning of students taught social studies with Computer Assisted Instruction and those taught using the conventional teaching methods.
- Compare the achievement scores of boys and girls taught social studies using the Computer Assisted Instruction (CAI).
- Compare the level of retention of learning of boys and girls taught social studies using Computer Assisted Instruction (CAI).
- To compare the academic performance of boys in each school taught social studies using CAI.

- To compare the academic performance of girls in each school taught social studies using CAI.

To achieve these objectives, six research questions were posed to guide the study. The population of the study was all Junior Secondary (JSS1) social studies students in public Junior Secondary Schools in Enugu North Local Government Area of Enugu State. The student population is 6383. The sample size was 1482 JSSI students from which 193 students constituted the students in the experimental group and 194 students constituted the students in the control group. The instrument used in the study was social studies Achievement Test (SSAT). To ensure content validity of the (SSAT) a test blue print (Table of specification) was built for the test giving due consideration to the analysis placed on each objective and major topics in the social studies syllabus (which covered social studies and physical environment) for junior secondary school one. Based on the table of specification, a total of thirty multiple-choice items were drawn for the SSAT on the Junior Secondary School Certificate Examination from the State Examination Development Centres. After the development of Social Studies Computer Assisted Instruction Package (SSCAIP) and lesson notes/plans developed for the experimental and control, groups were given to five (5) experts for criticism and validation.

The SSAT was tested for purpose of determining the psychometric indices of the test. A total of thirty (30) items of SSAT had good difficulty, discrimination and detractor indices. A trial test for determining the coefficient of stability of the SSAT was carried out using test-retest reliability technique.

The reliability coefficient of SSAT was found to be 0.73 using Pearson Product Moment correlation co-efficient. The data collected were analyzed using mean to answer the research questions while ANOVA was used to test for the six (6) hypotheses formulated to guide the study.

5.1.2 Summary of Findings

1. Students taught social studies with Computer Assisted Instruction (CAI) had a higher mean achievement score than those students taught using the conventional teaching methods in the achievement test. The mean was found to be significant. CAI has the facilities that attract students' attention and make them have interest in the lesson, learn well and perform better.
2. Students taught social studies with Computer Assisted Instruction (CAI) had a higher mean score than those taught using the conventional teaching method in the test for retention of learning. The mean was found significant. The use of CAI presents interactive activities that help retention in learning.
3. The study revealed that boys taught social studies with Computer Assisted Instruction (CAI) had an equal mean score with girls taught with the same Computer Assisted Instruction in the achievement test. The mean was not significant.
4. Boys taught social studies with Computer Assisted Instructions (CAI) performed better than girls taught social studies with the same computer Assisted Instruction (CAI) in the test for retention of learning

but the mean was not found to be significant. It could also be by chance, that boys performed better than girls.

5. There was no significant interaction effect of treatment given to students and their gender with respect to their mean scores in the achievement test. This is possible because they are exposed to the same treatment.

5.2 Implication of the Findings

The findings of the study have implication for social studies teachers, government and administrators of secondary schools and the curriculum planners.

The findings of this study revealed that Computer Assisted Instruction (CAI) improved students' academic performance and retention in social studies than the use of conventional teaching methods only. The implication of these findings is that students studying social studies will learn better, develop more interest and retain their learning better when Computer Assisted Instruction (CAI) is used as one of the teaching methods for teaching social studies. This will help the students to appreciate the norms and values of the content of social studies and apply their rules in living in the society thereby reducing social unrest in the community. Also social studies teachers have to adopt the use of Computer Assisted Instruction (CAI) to encourage student-centred learning in social studies classrooms in junior secondary schools in Enugu State. The teachers should be encouraged to be computer literate and have computers for themselves.

The adoption of the Computer Assisted Instruction (CAI) in teaching social studies requires the development of soft ware and well-equipped computer laboratory for its effective implementation. This implies that school administrators and the government need to constantly make provision for employment of computer programmers who will be working with the teachers who teach social studies in secondary schools in Enugu State.

The findings of the study will also help the planners of secondary school curriculum by giving them information relating to the teaching and learning of social studies, such as indicating appropriate strategies in modification and revision in social studies curriculum. The study will help curriculum planners to have knowledge of interaction between gender and instructional approach in social studies.

The result from the study also indicates that inculcation of good study habit in students by teachers, school counsellors and school administrators will improve the academic performance of students in social studies. When this is done, the present poor students' academic performance will be reduced.

5.2.1 Conclusion

The findings of this study showed that students' academic performance can be enhanced through the use of CAI as one of the teaching methods in social studies achievement test. Therefore, application of computer technology to all aspects of human endeavour coupled with the need to create student-centred classroom to engage learners in their learning tasks, improve learners' interest and consequently achievement in the school subjects has necessitated the use of computer in teaching. This study has found that computer assisted

instruction (CAI) improved students' academic performance and retention in social studies than concentrating only on the conventional methods. Since the Information Technology facilities have been recommended by the Federal Ministry of Education (FME) for the teaching of Social Studies, it is time to adopt it in line with other methods. This is because there are some topics, like the one in this study- physical environment, which will be well understood by students if a particular instruction like CAI is used.

Methods like Excursion, can also be used, but at this level of education, the Junior Secondary School (JSS) one,

- They are tender to be taken out to some places on excursion, which would have being better shown on the screen using CAI. Example visiting Udu Hill in Enugu, Benue and Niger River Bridge. This will help to reduce risk.
- Motion and animated pictures are in CAI which draws the students' attention and make them be interested in the lesson
- CAI is time saving: The time for organizing and visiting where to go, the teacher can extract some of the features in internet and other Encarta CDs and build up his/her lessons ready to slot into the screen.
- The CAI can reach a good number of students in the class at a time.
- The use of maps, charts and pictures are all incorporated in the CD prepared for lesson using CAI. The pictures are real and natural, with the use of CAI, learning process is vivid and retention is made easy. Also the study found out that no significant interaction effect of treatments given to students and their gender in social studies

achievement. In other words, students learn better when they are allowed to participate actively in the class by interacting with the teacher and their colleagues, work and learn in groups and to assess their own performance themselves. These results, therefore, revealed that Computer Assisted Instruction (CAI) is a very good supplement to conventional teaching method to enhance students performance in Social Studies. Moreover, Computer Assisted Instruction (CAI) provides powerful tools to support the shift to student centred learning and is capable of creating a more interactive and engaging learning environment for teachers and learners.

Since the use of computer packages is clearly a strategy that reflects modern business and industry practices and provides students with a learnable tool for creative thinking and problem solving abilities, it is hoped that if Computer Assisted Instruction is employed as one of the methods for teaching social studies to students in the secondary schools in Enugu State; the students will improve on their learning and passing the junior secondary school certificate (JSSC) Examinations with better grade. They will also be able to contribute their own quota to maintain peace and order in the nation which is one of the aims of teaching social studies in the schools.

5.3 Recommendations

Based on the findings of the study, the following recommendations are made:

1. Social Studies teachers should of a necessity be computer literate. They should try to have their own set, be in tune and conversant on

how to use computer, operate the internet, and learn how to get the information they need for any lesson. The Enugu State government should encourage the teachers to adopt the use if CAI in teaching Social Studies in the Junior Secondary Schools. Social studies teachers in Enugu State should be encouraged to adopt the use of the Computer Assisted Instruction (CAI) to teach social studies in the schools.

2. Curriculum planners such as Nigerian Education Research and Development Council (NERDC) should consider review of curriculum for social studies for junior secondary schools with a view to incorporating the Computer Assisted Instruction (CAI) techniques as against the current practice of out-lining the components of information technology in teaching the subject for more identification.
3. Enugu State government should encourage and liaise with stakeholders in the state to provide urgently, well-equipped computer laboratory in all the junior secondary schools in the state.
4. Enugu State Ministry of Education and Principals of Enugu State Secondary Schools should organize seminars, conferences and workshops to sensitize the social studies teachers on the use of Computer Assisted Instruction (CAI).

Generally, the use of computer in teaching will need time, money, space/accommodation, electricity and other things. The teacher should be on the look out to make use of any little opportunity that will help in any area of the needs listed above. This can be done through meeting with the school authority, parents (in PTA) curriculum planners, the ministry of education and

government to see the needs for using CAI. The teacher can then solicit for help in any possible way that will gear towards enhancing the performance of the students in schools. This is possible when the teacher must have seen the needs, know the needs and ready to help in solving them. The use of CAI will really upgrade the expectation in basic education, and especially the objectives of teaching social studies in schools.

5.3.1 Suggestions for Further Studies

Further research studies can be carried out on;

1. Effect of Computer Assisted Instruction (CAI) in other areas of social science education. Subjects such as Government, Economics, History, Geography, Religion education among others should be studied in other to find out whether there is any difference in computer assisted instruction (CAI) effectiveness.
2. To compare the utilization and impact of CAI and conventional approach in Government and Private own schools.

5.3.2 Contribution to Knowledge

1. This study had been able to establish the relevance of CAI in the teaching and learning of social studies in Enugu State, Nigeria
2. It has shown that teaching and learning of social studies is simplified and made interesting, to the extent that students are always keen and willing to attend social studies classes to improve their academic performance.

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APPENDIX A

SOCIAL STUDIES ACHIEVEMENT TEST (SOSAT) USED FOR THE PRETEST

Subject: Social Studies

Class: JS One

Time: 45 Mins

Name of Secondary School:

_____

Sex: Male ☐ Female ☐

Instruction: Answer all the questions. Choose the correct answer from the alternatives lettered A – D. Circle the letter that bears the option chosen by you.

Questions:

1. One benefit of socialization is that there is _____ (a) Much conflict (b) An act of tolerance and discipline (c) Social Instability (d) No acquisition of skills
2. Two or more nations form what is known as _____
   (a) Village (b) Family (c) Country (d) International
3. People who live around the low land areas should not build houses close to the river valley because _____ (a) There may be flooding when rivers overflow their banks (b) The areas may be inaccessible to man always (c) Man may be unable to put such areas to good use (d) The area is good for agricultural uses

4. Flooding can be checked by _____ (a) building channels to control the flow of rivers in the low land areas (b) sing machinery to reduce the highland to avoid flooding (c) Avoiding the construction of embankments to support the edges of the river values (d) avoiding the drainage aspect of the physical features of the area.

5. The primitive man did not consider one of this in choosing his settlement _____ (a) food (b) pasture (c) level land (d) Electricity

6. Which of the following actions can cause conflict in the society? _____
(a) Friendliness to fellow man (b) Honesty in doing all things (c) Selective justice to people (d) Loyalty to the country

7. Wells from which rude oil are obtained and processed into petrol and kerosene are found in the swampy areas of (a) Niger Delta (b) Jos Plateau (C) Ogoni wells (d) Sahel Savannah

8. The most important thing man needs for survival is _____ (a) shelter (b) food (c) clothes (d) education

9. Mode of dressing of people is mainly influenced by _____ (a) their physical environment (b) education and wealth (c) Attitudes and beliefs (d) their contact with people

10. Some towns in Nigeria grew up as a result of mineral deposits. An example of such town is _____ (a) Lagos (b) Aba
(c) Enugu (d) Abuja

11. Lagos is noted for flood during the wet season because _____

(a) The streets in Lagos are not maintained (b) Rains are heavy in Lagos (c) of the poor terrain in Lagos (d) Most parts of the land lies below sea level

12. Whether live in cities, towns or village our activities are often affected by _____ (a) Physical environment (b) social environment (c) religion (d) culture

13. Man's physical environment are mostly affected by _____ (a) Science and technology (b) Religion (c) custom (d) climate

14. The two major types of environment are _____ (a) social organization and institutions (b) homes and families (c) social environment and physical environment (d) religious institutions and social institutions

15. Marriage between a woman and more than one man is called _____ (a) Polygamous (b) Monogamy (c) Polyandry (d) polygamy

16. The smallest form of community is the _____ (a) village (b) State (c) Family (d) home

17. Man is a _____ (a) trained animal (b) physical animal (c) wild animal (d) social animal

18. Communities for economic and social reasons is _____ (a) Social mobility (b) Political relationship (c) Inter-community relationship (d) Socio-economic relationship

19. One of the benefits of inter-community relationship is _____ (a) diversity (b) unity (c) conflict (d) labour

20. One of these is possible in inter-community relationship _____ (a) marriage (b) patriotism (c) Social mobility (d) labour exchange

21. The process through which people in a society establishes relationship with each other is _____ (a) physical environment (b) social environment (c) socialization (d) social mobility.

22. One of the means by which children learn their culture and how to be members of the society before age of six is _____ (a) family (b) Religion (c) market (d) age grade

23. Hills, rivers, house and roads are features of _____ (a) human settlement (b) Nigerian environment (c) Physical environment (d) social environment

24. The most important function of the family to the community is _____ (a) ensure the continued existence of the community (b) provide the needs of the members of the community (c) train the members of the community (d) enlighten the member of the community

25. A social group in which members know one another and are intimate is called _____(a) Primary (b) secondary (c) tertiary (d) family

26. The way man lives and organizes himself make up his social environment while the _____ constitutes his physical environment. (a) Study of man (b) territory and the environment (c) brothers and sisters (d) things around him which are not human beings.

27. A good example of a primary social group is the _____ (a) school club (b) market women association (c) school scout (d) family

28. Which of these is a component of physical environment? _____ (a) family (b) schooling (c) community (d) forest

29. Which is the odd one out? _____ (a) ocean (b) rivers (c) temperature (d) lakes

30. One duty of the child in the family is to _____ (a) provide food (b) Provide shelter (c) Respect their parents (d) play games at home

APPENDIX B

LESSON PLANS FOR THE CONTROL GROUP

Conventional LESSON plan for the 1st and 2nd week – control group

School: Independence Layout Junior Secondary School, Enugu

Subject: Social Studies

Topic: Environment: Meaning and types

Class: JSS I Age of Students: 10-12

Duration: 45mins Date:

Behavioural Objective: By the end of this lesson, students should be able to:

1. Say the meaning of environment
2. Mention types of environments
3. List three towns and the mineral deposited in them.
4. Name five (5) things placed by nature in the environment
5. Mention five (5) things made by man in the environment
6. State three things people learn in their social environment

Entry Behaviour: Students see things in their environment and can mention them like tree, building, etc.

Instructional materials: Chalkboard, Chalk and textbook

INSTRUCTIONAL PROCEDURE

Time	Instructional stage	Instructional contents	Teacher's activities	Students' Activities
5mins	Introduction	Self Introduction	Introduces himself to students	Introduce themselves to teacher
5mins	1	Definition of environment	Gives various things that make up environment	Listen & jot down the teacher's points on meaning of environment and the make up
10mins	2	Concept of physical environment	Explains the concepts of physical environment. List the things that make up physical environment	Listen and jot down points on concepts of physical environment. List the things that make up physical environment
10mins	3	Concept of social environment	Explain the concepts of social environment and things that make up social environment	Listen and jot down points on concepts of social environment and things that make up social environment
10mins	Evaluation		Ask these questions : 1. What is environment 2. List 2 types of environment 3. Name 3 towns and the mineral deposits in them 4. Name 5 man made things in the environment 5. Name 5 things nature place in the environment. 6. Name 2 types of social groups	Attempts the questions individually
5mins	Summary		Summarizes the whole lesson	Listen to the teacher, ask questions where necessary

CONVENTIONAL LESSON PLAN

FOR 3RD AND 4TH WEEK (FOR CONTROL GROUP)

School: C. S. S. Iva Valley Junior Secondary School, Iva Valley

Subject: Social Studies

Topic: Resources in the environment: influence of physical environment on human activities

Duration 45mins Date:

Class: JSS 1 Ave Age: 11 yrs

Behavioural Objective: By the end of this lesson, students should be able to:

1. Name five resources in the environment
2. List 3 ways physical environment affect human activities
3. Name the seasons in Nigeria

Entry Behaviour – Students have learnt about physical and social environments, they can say things one can see in environments – e. g. trees, river, family, school, etc.

Instructional Material – Chalkboard, Chalk and Textbook

INSTRUCTIONAL PROCEDURE

Time	Instructional stage	Instructional contents	Teacher's activities	Students' Activities
5mins	Introduction	Introducing the lesson	Introduces the lesson, writing the topic on the board	Liston & jot down points
5mins	1	Resources in the environment	Explains various resources we can get from our environment like coal, oil, mineral, food, fruits, etc.	Liston & jot down points
10mins	2	Influence of physical environment on human activities	Explain that physical environment affects of our lives, the work we do, clothes we wear and food we eat (where there are grass land, Fulani graze cows, where there are rivers – People fish, where there are mineral – industries are built)	Liston & jot down points
10mins	3	Influence of physical environment	Explains the two seasons in Nigeria (Dry & wet). 3 types of vegetation also swamp forest, rain forest & tropical grass land or Savannah. This also determines the type of crops grown in these areas.	Liston & jot down points
10mins	Evaluation		Ask these questions: 1. Name 3 resources and the town they are found 2. List the seasons in Nigeria 3. What does physical environment affect us (Name the four vegetations)	Attempt the questions individually
5 mins	Summary		Summarizes the whole lesson	Listen to the teacher, ask questions where necessary

CONVENTIONAL LESSON PLAN FOR 5TH AND 6TH WEEK (FOR CONTROL GROUP)

School: Independence Layout Junior Secondary School, Enugu

Subject: Social Studies

Topic: Types of environmental problems and causes of these problems

Class: JSS 1 Ave Age: 11 yrs

Duration 45mins Date:

Behavioural Objective: By the end of this lesson, students should be able to:

1. Mention some environmental problems
2. Explain what causes these problems
3. List areas where the problems are caused more

Entry Behaviour – The students have learnt about the resources in our environment, and can name them, e.g. mineral, food, fruits, etc. also things that can affect human activities like seasons, vegetation, etc

Instructional material – Chalkboard, Chalk and Textbook

INSTRUCTIONAL PROCEDURE

Time	Instructional stage	Instructional contents	Teacher's activities	Students' Activities
4mins	introduction	Introducing the lesson	Introduces the lesson, writing the topic on the board	Liston & jot down points
10mins	1	What are environmental problems?	Explains the environmental problems – as the problems or disasters that can occur from the environments, e.g. flood, earthquakes, tornadoes, hurricanes, drought, etc	Liston & jot down points
10mins	2	Causes of environmental problems	Explains cause of some of these problems, as too much rain water wash away farm crops in flood. Long periods of dry weather causes drought.	Liston & jot down points
5mins	3	Areas of the problems	Explain that the weather condition or climate of a place can result to any of these problems e.g. wet season in the southern part and drier in the northern part of Nigeria	Liston & jot down points
7mins	Evaluation		Ask these questions: 1. List 5 environmental problems 2. Explain 3 causes of these problems 3. Mention areas that are affected by these problems	Attempt the questions individually
4mins	Summary		Summarizes the whole lesson	Listen to the teacher, ask questions where necessary

CONVENTIONAL LESSON PLAN FOR 7TH AND 8TH WEEK
(FOR CONTROL GROUP)

School: C. S. S. Iva-Valley Junior Secondary School, Iva-Valley

Subject: Social Studies

Topic: Effects of environmental problems on the society: Solution to the environmental problems

Class: JSS 1 Ave Age: 11 yrs

Duration 45mins Date:

Behavioural Objective: By the end of this lesson, the students should be able to:

1. List effects of environmental problems in the society
2. State solutions to these problems

Entry Behaviour – Students have learnt about environmental problems and can mention them. This links up the introduction.

Instructional Material – Chalkboard, Chalk and Textbook

INSTRUCTIONAL PROCEDURE

Time	Instructional stage	Instructional contents	Teacher's activities	Students' Activities
5mins	Introduction	Introducing the lesson	Introduces the lesson, writing the topic on the board	Liston & jot down points
10mins	1	Effects of environmental problems	Explains that this problem can render people homeless with flood, hunger with drought, poverty to the country with low yield in export cops. Sickness from dirty environment, unemployment because no raw materials for industries	Liston & jot down points
10mins	2	Solution to the environmental problems	**Explain solutions** 1. Drainage system to control water 2. Planting economic trees to control erosion 3. Irrigation to supply water to farms 4. Also praying to God for rain in time of serious drought 5. Keep environment clean, to keep away insects & diseases.	Liston & jot down points
10mins	3	Evaluation	**Ask these questions** 1. List effects of environmental problems 2. Explain 5 solutions to the problem	Attempt the questions individually
10mins	Summary		Summarizes the whole lesson	Listen to the teacher, ask questions where necessary

APPENDIX C

LESSON NOTES FOR THE EXPERIMENTAL GROUPS

Week One

Topic: Types of Environment

Mode of Instruction: Major facts are presented in a compact disc (CD) plate, to be slotted in the CDROM for easy teaching and learning as follows:

The Concepts of Environment: Man is surrounded where he lives by plants or trees, building, rivers, hills and other people whom he interacts with among others. Some of the things which are placed by nature like the trees, hills, lakes, rivers, mountains and forests while some others are man made like the buildings, roads, markets, schools, etc.

Man's surroundings and the things around him is man's environment. Man's environment can be physical environment or social environment.

The Concept of Physical Environment: Physical environment are those things which surround man in his environment. Some of them are put there by nature or are put by man himself. Features like hills, rivers and soil are put there by nature whereas different kinds of houses, roads and bridges are made by man. Hilly areas in Nigeria like Jos Plateau, the Udi hills provide different types of highlands and low lands which are very useful to man, certain towns and villages grew up near hills as a result of man seeking protection from his enemies e.g. Abeokuta in Ogun State. Some of the hills contain minerals that are useful to man; tin ore from Jos Plateau, coal from Udi hills. The above hills or high lands and low lands together with other land forms like valleys, plateau, coastal plains make up what is called relief or physical feature of an area.



Udi Hill in Enugu



Plateau Mountain

The Concept of Social Environment: The way man lives and organizes himself make up his +ocial environment while the territory and the environment constitute his physical environment. By studying man in relation to his interaction with other people in his environment, we understand how man can manipulate his social environment to his advantage. In the social environment, people's habits, customs and the way they behave are learnt to bring about changes so as to make his life better.

People who live together form a society. The people in a society form groups into primary and secondary groups. This aspect will be treated later in the next lesson.

The teacher can present different trees, hills, buildings as aspect of physical environment in a compact disk (CD) as well as group of people living together or a market scene.

Evaluation:

1. Which of these is a component of Physical environment? (a) Family (b) Schooling (c) Forest (d) Community
2. Coal is found in one of these towns (a) Ewekoro (b) Lagos (c) Ajaokuta (d) Enugu.
3. The way man lives and organizes himself is his social environment while _____ is his physical environment. (a) Study of man (b) Territory and environment (c) Brothers and sisters (d) Things around him which are not human beings.
4. One duty of the child in the family is to _____ (a) Provide shelter (b) Respect their parents (c) Provide food (d) Play games at home
5. Some towns grew up as a result of mineral deposit. AN example of such town is _____ (a) Lagos (b) Aba (c) Abuja (d) Enugu.

LESSON NOTES FOR THE EXPERIMENTAL GROUPS
Week Two & Three:

Topic: Features of Physical and Social Environment

Mode of Instruction: The teacher should present the basic facts on the topic and put them in a compact disc (CD) for instruction using the computer.

Features of Physical Environment: We have learnt that physical environment are the things surrounding man in his environment such things are the hills, oceans, lakes, buildings, roads, railways and bridges, etc. the hills or highlands and low lands together with other land forms like valleys, plateau and coastal plains male up what is called relief or physical features of an area.



Bridge



Railway



Rural Road

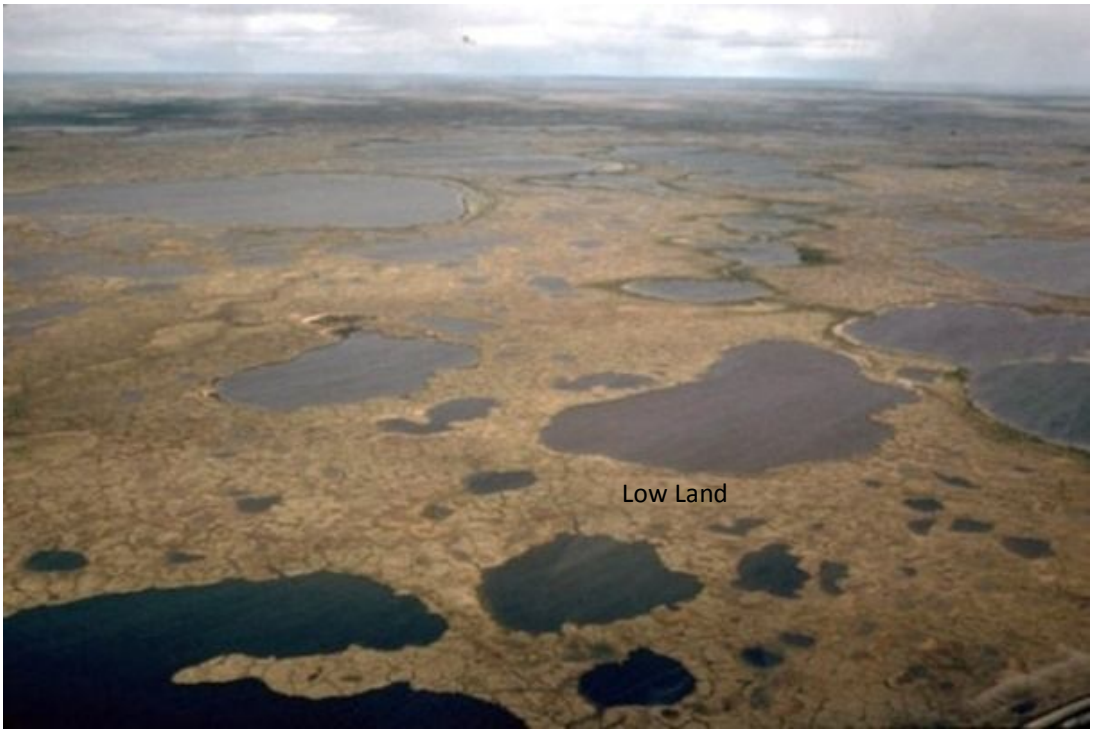


Urban Road

The Concept of Highlands and Low Lands: The highlands include Jos Plateau, Biu plateau all of which is about 600 metres above sea level. There are Eastern highlands and Western high lands with heights ranging from 300m to 600m above sea level. Some of the highlands contain mineral deposits like tin ore in Jos, coal in Udi hills, some gold in Ilesha area of Western high lands. These highlands are made up of volcanic rocks and cannot be washed away. The lowland areas are along the valleys of Niger, the Benue and tributaries. Others are the Sokoto plains and Chad Basins. These low lands contain mineral deposits like petroleum and gas. At the coast, the land can be covered with deposits of upland soil brought from the upper part of a river course, thus forming delta.



High Land



Low Land

The Rivers and Lakes: Rivers are significant to man. The two major rivers in Nigeria are the Rivers Benue and Niger which covers as means of transportation by using canoes, boats or ships. The Kainji Dam was built from the River Niger which supplies electricity to people.



River Niger



Kainji Dam



River Benue

Lakes are also important physical features. Lake Chad, Kainji Lake and Oguta Lake can be used as holiday resorts, places of fishing and sources of water for irrigation. There are rivers and lakes around our local communities.



Oguta Lake



Kainji Lake

Features of Social Environment: People in the social environment are organized into groups, for easy controls of the people in the environment. The number of people in one place may be small, e.g. village or town. Accordingly, their organization and government may be affected. The customs of the people affects what they do and how they use their physical

environment. A village consists of various people: men and women, old and young, fathers and mothers, boys and girls. If these people are not organized in some way, they can hardly live together as orderly group. Every member of the village needs the cooperation of others if he is to live well and be happy.

Social Groups: Social groups are people who maintain common interests. Members of the group have certain rules of behaviours and depend on one another in performing their functions. There are two major types of groups: the primary group and secondary group. The primary groups know each other very well. They are very close and have face to face relationships which are more or less permanent. E. g. family, the village, age group, age mates and play mates. The family can be biological or social aspects. The biological aspects are due to blood relation or the like. The children in the family learn the basic things from other aspects of the family, the extended family. The most important function of the family is keeping the family tree alive.

The secondary group is made up of larger number of people. The relationships in their groups are not very close and intimate. Examples include trade unions, clubs, churches, mosques, colleges, companies, political parties, etc.



Family

Marriage in the Community: Marriage is the union of a man and a woman through ceremonies approved by the society for the man and woman to come together. Marriage is an institution. Marriage brings peace and unity among various communities and nations including exchange of ideas and development.



Traditional Wedding



Church Wedding

The teacher can present pictures of the hills, seas, lakes and marriage ceremonies to buttress his points in a compact disc.

Evaluation Questions

1. A good example of a primary social group is the _____(a) School club (b) Family (c) School scout (d) Market women
2. A social group which it members know each other and are intimate is called _____ Social group (a) Primary (b) Secondary (c) Family (d) Tertiary
3. The most important function of the family to the community is to _____ (a) Ensure the continued existence of the community (b) Promote the needs of the members of the community (c) Train the members of the community (d) Enlighten the members of the community
4. One of the means by which children learn their culture and how to be members of the society before age of six is _____ (a) Family (b) Religion (c) Age grade (d) Market

LESSON NOTES FOR THE EXPERIMENTAL GROUPS

Week 4 & 5

Topic: Importance of Physical and Social Environment on Human Activities

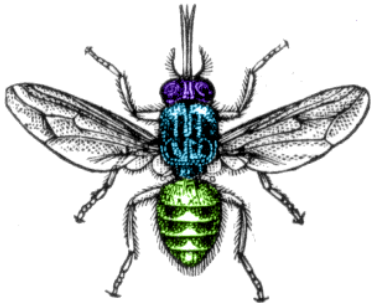
The teacher should present the lesson in a CD Rom for students' learning as follows:

Man can put into good use the things found in physical environment like vegetation, soils and minerals. Humus soil is considered to be most useful for agriculture. Loam soil or clay soil may not be very useful for agriculture purposes but can be used in other ways. Some houses are built with burnt bricks made from clay, pots and some ceramic works are made of clay.

In the forest areas of the southern Nigeria, big trees are cut down regularly and used in factories like big plywood industry at Sapele in Edo State and local timber industries that are found all over the country.

Mineral resources like tin ore and coal are beneficial to man. Petroleum is now an important industry in Nigeria economy – as they are processed into kerosene and petrol.

Physical features help to determine the type of human settlement. The materials in the locality determine the type of houses to build. There are many people in the cities who are faced with the problem of over crowding and unhealthy environment. We need to take care of our immediate environment. People live in cities because of social amenities like pipe born water supply, electricity, television, big shops, etc. such amenities are far in the rural areas. People in the rural areas engage in the projects through self-help for development of the localities.



In the social environment, people's habit and customs regarding sanitation, food preparation, exposed meat and dead domestic animals and poor use of water can lead to conditions that favour disease. Also many people enjoy eating sea food, fish, fruits and insects and drinking untreated milk and blood which may be full of parasites and dangerous bacteria. So the physical and social environment affects each other.

Evaluation Questions

1. When physical environment is dirty, we can easily_____ (a) Find food on dung hills (b) Win the battle against environmental sanitation (c) Rejoice with health workers (d) Catch diseases which spread fast
2. Houses on hills are found mainly in _____ (a) Riverine areas (b) the drier north (c) Concrete structure areas (d) Mountainous area
3. All but one describes the social environment_____ (a) The people among whom we live (b) The language we speak (c) Our family, trading and other activities (d) The theatre where we watch films about social studies

LESSON NOTES FOR THE EXPERIMENTAL GROUPS

Week 6 & 7

Topic: Types and causes of environmental problems

The following information is presented in CD-Rom for the students learning Environment can create problems for man. Example is the relief and drainage. Low land areas may flood whereas high land areas may be inaccessible to man and thus unable to be put to good uses.

Areas of excessive flooding cannot be used for agricultural purposes. The same is true of high land areas. People who live around low land areas should not build their houses close to the river valley because of the danger of flooding when the rivers overflow their banks. Towns which have suffered from this kind of flooding include Lagos and Ibadan.



Flood



Gully/Erosion Site

In the cities, many people live there and can be faced with the problem of over crowding and unhealthy environment. Such unhealthy environments include the pollution from the industrial products, household wastes and automobiles.

The causes of environmental problems can be traced to water or rain which leads to flooding and erosion, unfavourable climate conditions leading to desertification and human activities leading to bush burning felling of trees in the vegetation, road construction and building of houses among others.

Evaluation Questions

1. Problems created in the environment are caused by _____
   (a) Rivers (b) Human activities (c) Vegetation (d) Road construction
2. Unhealthy environment can lead to _____ (a) Pollution (b) Industrial wastes (c) Household wastes (d) Erosion

LESSON NOTES FOR THE EXPERIMENTAL GROUPS

Week 8

Topic: How to solve the problems of the environment

The CD-Rom is used to present the following facts: man competes with other organisms from the resources of the environment but he uses his knowledge of science and technology to control the environment to solve some inherent problems. For example, the man kills mosquitoes, flies, snakes, pests with poison produced through science as the organisms cause sicknesses like malaria, typhoid and other diseases to man. Apart from the above, may diseases like malaria and pains are controlled by the use of herbs.

Problems created by highland areas can be done by reducing the highland areas using machineries while flooding caused by rivers can be checked by building canals to control the flow of rivers in the low land areas. The problem of unhealthy environment can be done by proper sanitation scarcity of water for crops growth can be solved through irrigation while drainage can be used to improve flooded lands.

Evaluation Questions

1. Water is artificially introduced into the dry farm land through _____ (a) Irrigation (B) Rain fall (c) Drainage (d) flood
2. Forest vegetation grow best where rainfall is _____ (a) Heavy and rainy season long (b) Light and dry season long (c) Light and rainy season short (d) Heavy and dry season long

APPENDIX D

SAMPLE OF THE STUDENTS NOTE (Some answers expected)

- Environment is man's surrounding and the things around him.
- Types of environment are:
    1. Physical environment
    2. Social environment
- Towns and minerals deposited in them are:

- Enugu, Markurdi – Coal
- Jos – Tin ore
- Ilesha, Sokoto – Gold
- Rivers, Cross River, Delta States – Oil & gas
- Sokoto, Ewekoro - Limestone

- Things placed by nature in the environment – trees, hills, rivers, valleys, soil, etc
- Things placed by man in his environment are – buildings, roads, bridge, garden, market, school, etc.
- Things people learn in their social environment - culture, to live together, respect elders
- Types of social groups are –

Primary groups e.g. family, age group or age mates, village, etc.

Secondary groups – e.g., Clubs, Church, Mosques, Companies, Political Parties.

2nd Note.

Resources in the environment are

1. Coal
2. Tine Ore
3. Oil and gas
4. Gold
5. Cement
6. Palm oil
7. Limestone
8. Plywood
9. Rubber
10. Cocoa

How physical environment affect human activities

1. Settlement – people settle near natural resources. Also types of house or shelter
2. Eating – the food we eat
3. Clothes we wear
4. The work we do , e.g. fishing in the river, grazing cow in grassland, etc

Where there are river people fish

Where there are grass land people graze cows

Where there are mineral industries are built

Seasons in Nigeria are

Wet or rainy season

Dry (or heat) season

Environmental problems and cause

1. Flood – by rain water
2. Drought – long period of dry weather
3. Erosion – wash away of soil
4. Disease e.g. caused by tsetse fly

The weather condition or climate of a place can result to any of these problems.

Effects of environmental problems on society are

1. Homelessness
2. Hunger
3. Poverty
4. Sickness
5. Unemployment

Solution to the environmental problems

1. Drainage systems to control water
2. Planting economic trees to control erosion
3. Irrigation to supply water in farms
4. Keep clean environment to keep away insects and diseases
5. Praying always

Social environment

The way people live and organize themselves make up their social environment.

Types of social environment are:

1. Primary e.g. family
2. Secondary e.g. club

APPENDIX E

Table 1.1: Students JSSCE Results in Social Studies From 2005 – 2008 – Enugu State of Nigeria

Year	Total Enrolment	Total Credit (A & C)	Total Pass	Failure
2005	116,526	12,112 (10%)	23,582 (20.2%)	80,824 (69.4%)
2006	142,379	26,641 (18.7%)	41,225 (29%)	74,508 (52.3%)
2007	172,382	40,652 (23.6%)	34,978 (20.3%)	96,753 (56.1%)
2008	182,659	39,085 (21.4%)	40,651 (22.26%)	95,498 (52.2%)

Source: Statistics Unit, Examination Development Centre, Enugu. May, 2009.

STUDENT RAW SCORES

Appendix G

Government Technical Collage (GTC)						
S/No	**Pretest**	**Posttest**	**Retention**	**Male**	**Female**	**Difference**
1.	9	10	24	1		1
2.	6	10	21	1		4
3.	5	8	18	1		3
4.	7	8	20	1		1
5.	6	8	19	1		2
6.	4	8	15	1		4
7.	4	8	17	1		4
8.	7	9	21	1		2
9.	6	9	19	1		3
10.	3	7	17	1		4
11.	4	8	18	1		4
12.	6	9	20	1		3
13.	5	8	18	1		3
14.	6	12	23	1		6
15.	3	8	16	1		5
16.	6	9	20	1		3
17.	5	9	19	1		4
18.	5	8	18	1		3
19.	3	8	16	1		5
20	2	12	24		1	10
21.	7	10	23		1	3
22.	5	9	17		1	4
23.	7	10	23		1	3
24.	4	8	18		1	4
25.	2	8	14		1	6
26.	7	10	20		1	3
27.	5	8	20		1	3
28.	5	8	9		1	3
29.	8	9	10		1	4
30.	5	7	9		1	2
31.	7	9	12		1	2
32.	5	10	14		1	5
33.	4	7	10		1	5
34.	4	9	14		1	5
35.	7	8	12		1	3
36.	5	10	18		1	5
37.	3	8	12		1	5
38.	4	8	15		1	4
39.	5	8	17		1	3

40.	4	9	12		1	5
41.	5	8	10		1	5
42.	3	8	12		1	5
43.	4	8	15		1	4
44.	5	10	14		1	5
45.	5	8	12		1	5
46.	5	8	10		1	4
47.	4	8	12		1	4
48.	5	9	13		1	4
49.	3	8	14		1	5
50.	6	9	16		1	3
51.	6	20	26		1	14
52.	7	19	27		1	12
53.	8	20	28		1	12
54.	9	21	28		1	12
55.	10	22	27		1	12
56.	9	23	24		1	14
57.	9	23	22		1	14
58.	8	15	20		1	7
59.	5	19	22		1	14
60.	4	17	20		1	13
61.	7	18	24		1	11
62.	6	20	23		1	14
63.	9	21	24		1	12
64.	5	10	17		1	5
65.	5	12	18		1	7
66.	7	13	21		1	6
67.	7	13	21		1	6
68.	5	15	20		1	10
Government Secondary School Abakpa						
1.	5	16	21	1		11
2.	5	17	19	1		12
3.	6	13	18	1		7
4.	7	17	20	1		10
5.	5	16	19	1		11
6.	5	15	20	1		10
7.	5	16	23	1		11
8.	5	17	18	1		12
9.	4	12	20	1		8
10.	5	15	21	1		10
11.	3	16	20	1		13
12.	4	15	22	1		11
13.	4	15	22	1		8
14.	6	14	20	1		7
15.	5	12	19	1		7
16.	5	13	18		1	8

17.	5	15	20		1	10
18.	9	17	22		1	8
19.	4	13	21		1	9
20	5	15	20		1	10
21.	7	15	23		1	8
22.	5	17	22		1	12
23.	5	18	20		1	13
24.	5	17	19		1	12
25.	6	14	18		1	8
26.	4	12	18		1	8
27.	5	14	19		1	9
28.	5	12	18		1	7
29.	5	10	18		1	5
30.	5	12	17		1	7
31.	5	14	18		1	7
32.	5	12	17		1	7
33.	4	11	20		1	7
34.	4	8	12		1	4
35.	5	10	13		1	5
36.	3	8	14		1	5
37.	4	10	11		1	6
38.	3	7	10		1	4
39.	5	8	12		1	3
40.	7	13	23		1	6
41.	7	14	24		1	7
42.	8	14	29		1	6
Army Day Junior Secondary School Awkunanaw						
1.	5	7	27	1		5
2.	8	13	21	1		6
3.	9	14	24	1		5
4.	10	17	24	1		7
5.	13	20	25	1		7
6.	8	11	21	1		3
7.	13	20	25	1		7
8.	9	20	27	1		11
9.	11	20	23	1		9
10.	14	24	29	1		10
11.	10	20	26	1		10
12.	8	13	23	1		5
13.	11	23	18	1		12
14.	12	24	28	1		12
15.	7	20	24		1	13
16.	9	20	29		1	11
17.	9	20	29		1	11
18.	9	20	28		1	11
19.	5	15	23		1	10

20.	8	20	26		1	12
21.	10	20	27		1	10
22.	10	18	28		1	8
23.	11	18	22		1	7
24.	7	15	20		1	8
25.	19	18	25		1	8
26.	5	12	20		1	7
27.	7	10	20		1	3
28.	5	13	20		1	8
29.	5	12	22		1	7
30.	5	10	21		1	9
31.	7	20	25		1	9
32.	7	20	25		1	13
33.	10	23	26		1	13
34.	7	12	24		1	5
35.	9	29	26		1	12
36.	9	20	27		1	11
37.	10	19	25		1	9
38.	8	16	21		1	8
39.	10	22	27		1	12
40.	10	23	26		1	13
41.	9	22	21		1	8
42.	9	20	25		1	13
43.	10	19	21		1	11
44.	7	10	21		1	13
45.	10	18	25		1	7
Akwuke Junior Secondary School Enugu						
1.	10	22	26	1		10
2.	8	20	27	1		12
3.	9	14	24	1		5
4.	6	21	28	1		15
5.	10	20	25	1		10
6.	5	17	21	1		12
7.	9	21	25	1		12
8.	10	22	10	1		12
9.	6	17	21	1		11
10.	5	20	22	1		15
11.	7	17	28		1	10
12.	5	17	22		1	12
13.	3	13	23		1	10
14.	5	13	21		1	8
15.	4	14	23		1	10
16.	5	13	22		1	8
17.	6	14	22		1	8
18.	6	16	25		1	10
19.	4	10	19		1	6

20.	4	13	22		1	9
21.	8	10	26		1	2
22.	7	16	24		1	9
23.	6	15	23		1	9
24.	5	13	22		1	8
25.	5	14	18		1	9
26.	6	14	22		1	8
27.	4	13	22		1	9
28.	4	12	17		1	8
29.	9	13	22		1	4
30.	4	12	21		1	8
31.	7	16	21		1	9
32.	7	16	25		1	9
33.	7	16	24		1	9
34.	7	15	21		1	9
35.	6	16	20		1	9
36.	4	14	23		1	10
37.	4	13	22		1	9
38.	4	12	16		1	8
39.	5	13	18		1	8
40.	8	17	22		1	9
41.	3	12	17		1	9
42.	6	15	24		1	9
43.	8	16	26		1	8
44.	5	8	10		1	3
45.	5	8	12		1	3
46.	5	8	8		1	2
47.	5	7	9		1	8
48.	5	9	10		1	4
49.	7	16	21		1	9
Independence Layout Junior Secondary School Enugu						
1.	5	6	8	1		6
2.	7	8	10	1		4
3.	5	10	22	1		4
4.	7	19	26	1		6
5.	4	9	8	1		4
6.	4	8	20	1		4
7.	4	8	18	1		4
8.	7	8	20	1		5
9.	4	18	19	1		5
10.	5	9	20	1		4
11.	4	18	16	1		6
12.	5	9	19	1		5
13.	7	18	21	1		6
14.	5	16	19	1		4
15.	5	7	19		1	2

16.	7	19	20		1	4
17.	7	19	26		1	9
18.	5	20	22		1	10
19.	5	10	18		1	9
20.	5	17	25		1	12
21.	5	17	25		1	10
22.	5	19	22		1	10
23.	7	20	27		1	10
24.	5	20	28		1	12
25.	7	20	27		1	9
26.	6	21	26		1	5
27.	7	19	26		1	9
28.	6	21	26		1	12
29.	7	22	25		1	10
30.	6	21	27		1	13
31.	8	21	26		1	12
32.	5	207	27		1	13
33.	8	21	26		1	10
34.	6	23	24		1	13
35.	5	20	24		1	14
36.	8	23	27		1	13
37.	7	20	28		1	12
38.	5	17	23		1	12
39.	5	18	24		1	10
40.	6	21	27		1	10
41.	6	21	26		1	14
42.	7	19	26		1	12
Coal Camp Secondary School Enugu						
1.	7	19	26	1		6
2.	4	18	20	1		9
3.	7	19	26	1		7
4.	5	18	24	1		9
5.	8	21	26	1		12
6.	5	20	24	1		9
7.	8	22	25	1		12
8.	6	20	26	1		12
9.	7	19	27	1		12
10.	4	20	22	1		12
11.	9	21	28	1		10
12.	10	20	27	1		12
13.	9	23	26	1		7
14.	9	21	28	1		13
15.	6	21	24		1	12
16.	5	19	22		1	9
17.	7	18	24		1	12
18.	9	21	24		1	11

19.	7	18	24		1	11
20.	9	21	24		1	10
21.	5	12	18		1	10
22.	7	13	21		1	8
23.	6	13	18		1	9
24.	5	16	29		1	7
25.	6	13	18		1	11
26.	7	15	20		1	10
27.	9	21	24		1	6
28.	5	10	19		1	7
29.	9	23	26		1	12
30.	5	16	23		1	12
31.	9	17	22		1	8
32.	9	23	26		1	11
33.	5	15	21		1	10
34.	9	17	22		1	8
35.	7	15	23		1	12
36.	7	15	21		1	10
37.	6	14	21		1	10
38.	7	17	20		1	7
39.	10	15	25		1	8
40.	6	20	23		1	13
41.	9	15	20		1	7
42.	5	15	20		1	10
Community Secondary School Obeagu Enugu						
1.	5	10	13	1		7
2.	9	20	27	1		8
3.	8	20	26	1		11
4.	10	18	28	1		6
5.	7	18	24	1		9
6.	9	21	24	1		12
7.	7	13	21	1		11
8.	9	21	22	1		12
9.	6	20	23	1		7
10.	5	12	18	1		7
11.	7	13	21	1		10
12.	5	16	22	1		9
13.	6	13	25	1		12
14.	6	18	23	1		11
15.	5	18	22	1		10
16.	6	14	24	1		8
17.	9	18	22	1		8
18.	5	15	20	1		10
19.	7	22	24	1		8
20.	5	17	20	1		10
21.	5	15	21	1		10

22.	6	20	22	1		10
23.	6	14	18	1		8
24.	5	17	23	1		9
25.	5	20	23		1	10
26.	6	20	26		1	14
27.	7	19	27		1	12
28.	8	20	28		1	12
29.	9	21	28		1	12
30.	10	22	27		1	12
31.	9	23	26		1	14
32.	8	15	20		1	7
33.	5	19	22		1	14
34.	4	17	20		1	13
35.	7	18	24		1	11
36.	6	20	23		1	14
37.	9	21	24		1	12
38.	10	15	25		1	5
39.	5	12	18		1	7
40.	7	13	21		1	6
41.	5	15	20		1	10
42.	7	15	21		1	11
43.	5	17	19		1	12
44.	6	13	18		1	7
45.	7	17	20		1	10
46.	5	16	19		1	11
47.	5	15	20		1	10
48.	5	16	23		1	11
49.	5	17	18		1	12
50.	5	15	20		1	8
51.	4	15	22		1	11
52.	6	12	20		1	8
53.	5	12	19		1	8
54.	9	17	22		1	8
55.	5	15	20		1	10
Community Secondary School Obuofia Enugu						
1.	20	15	21	1		10
2.	3	16	20	1		13
3.	4	15	22	1		11
4.	6	14	20	1		8
5.	5	12	19	1		7
6.	5	13	18	1		8
7.	5	15	20	1		10
8.	7	15	23	1		8
9.	5	17	20	1		12
10	5	20	21	1		12
11.	5	18	20	1		13

12.	5	17	19	1		12
13.	4	12	18	1		8
14.	6	14	18	1		9
15.	5	12	18	1		7
16.	5	10	18	1		5
17.	5	11	20	1		7
18.	7	15	23	1		8
19.	5	17	23	1		8
20.	9	17	22	1		8
21.	5	13	18		1	6
22.	6	19	27		1	9
23.	9	20	25		1	10
24.	7	20	27		1	13
25.	6	21	26		1	13
26.	8	23	27		1	13
27.	5	20	27		1	13
28.	7	22	25		1	11
29.	8	21	26		1	12
30.	6	23	24		1	13
31.	5	20	24		1	12
32.	5	25	25		1	12
33.	7	21	23		1	13
34.	8	21	26		1	12
35.	6	21	27		1	9
36.	9	20	25		1	10
37.	5	18	24		1	13
38.	7	8	10		1	6
39.	7	9	13		1	6
40.	8	23	27		1	13
41.	7	22	25		1	13
42.	8	21	26		1	12
43.	7	21	23		1	14
44.	5	20	24		1	14
45.	8	23	26		1	13
46.	9	22	26		1	12
47.	6	19	27		1	13
48.	5	20	23		1	10