

**USMANU DANFODIYO UNIVERSITY, SOKOTO  
(POSTGRADUATE SCHOOL)**

**EFFECT OF COMPUTER ASSISTED INSTRUCTION ON STUDENTS'  
PERFORMANCE IN READING COMPREHENSION IN JUNIOR  
SECONDARY SCHOOLS IN MINNA NIGER STATE**

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**BY**

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## **DEDICATION**

This work is dedicated to my parents late Alhaji Suleiman Dada and Hauwa Suleiman.

## CERTIFICATION

This Dissertation by Tani SULE (1221047006) has met the requirement for the Award of the Degree of Masters of Education (M.Ed) Language Education of Usmanu Danfodiyo University Sokoto and is approved for its contribution to knowledge.

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## **ABSTRACT**

This study investigated the Effect of Computer Assisted Instruction (CAI) on students' performance in Reading Comprehension in Junior Secondary Schools in Minna Niger State. The design of the study is quasi experimental design. The population of the study was all Junior Secondary School 1 in Minna Niger State. The population stood at 15,451. From this population, two co – educational Junior Secondary Schools with a population of 211 were purposively sampled with two intact classes to effectively conduct the study. One intact class from school A formed the experimental group while the remaining one intact class was assigned control group B respectively. The instrument for data collection was Reading Comprehension Performance Test (RCPT). The data collected were analyzed using mean and standard deviation, T-test and ANOVA which were tested at 0.05 level of significance. Among the findings of the study are: Experimental group performed better in identifying word meaning than the control group. It was found that the experimental group improved in their contextual word meaning as they used context clues to find the meaning of some words in the comprehension passages. This study recommends that since the experimental group performed better than the control group in word meaning Computer Assisted Instruction should be used in teaching and learning

# CHAPTER ONE

## INTRODUCTION

### 1.0 Background to the Study

Reading is the ability to interpret symbols into something that could be understood and said aloud. It means the ability to decode, deduce meaning from combination of letters, signs, gestures or words. It is also a way of building up meaning from what has been put together in written form, words and sentences which are expected to present certain information or intention. It is a form of communication during which the contents, challenges and claims are gone over by the reader who tries to capture the substance of the written materials. According to Sisulu (2004), Reading is one of the fundamental building blocks of learning. Becoming a skilled and adaptable reader enhances the chances of success at school and beyond. Reading is not just for school, it is for life. In all its varieties reading is vital to being informed and obtaining a better understanding of what is being read. It makes man to be a thoughtful and constructive contributor to a democratic and cohesive society.

Reading Comprehension on the other hand is the ability to read and understand the meaning of that which has been read by the reader. For understanding to happen in reading, the reader has to acquire the skills of finding the meaning of words in the reading material, identify what the reading material is all about which is the main idea or theme, comparing and contrasting similarities and differences in the reading material and then summarizing the read material in few lines, sentences or paragraphs based on what the reader has grasped from the reading material.

Cunningham (2004), suggested strategies to use for easy comprehension which include among others Word meaning, identification of main ideas, comparing and contrasting and summarization.

The absence of widespread culture of reading in Nigeria acts as a serious barrier to national development and international competitiveness. The economic, social and political health of the nation today depends on building literate citizens that are able to read widely and apply it practically for development. It is therefore, a necessity to make the present generation more aware of the benefits and importance of reading and ensuring that they have the literacy skills required in the modern society. This is why Osundare (2009), emphatically remarked that a country's level of development is a function of its level of mental and cultural evolution as well as the state of its educational advancement which is embedded in building a high level of literacy in all aspects of the population.

The foundation of a literate populace is built at the primary and secondary schools. How effective this foundation is laid largely dependent on the conditions which affect the quality of teaching and learning of reading in the schools. Reading is an important factor in the success of an individual and the development of the nation. It is through reading that we achieve our educational objectives .One of the most important functions of a teacher is to produce students who not only want to read but who actually read well (Onukaogu,2003). At the Junior Secondary School, students are expected to learn to comprehend a variety of expository text, to develop study and information gathering skills as well as high level of comprehension skills.

Despite this, teaching reading is not given adequate time in the school time table. According to Osakwe (2002) the student's ability is mostly tested in reading rather than being taught reading. Okebukola (2008) believed that most African elementary schools have no formalized reading programs. Ogwa (2002) also believed that reading is largely taught as a tool to reinforce other language skills rather than as a discipline. This means that there is no specific time for the teaching of reading, every other aspect of reading is taught as a whole in English Language lesson thereby not creating enough time for the teaching and learning of the basics of reading. Therefore, time should be allotted separately for the teaching of reading.

There are so many challenges faced by the teachers in the teaching of reading ranging from lack of pedagogical skills, how to help struggling readers, production of adequate reading materials, lack of interest in reading by teachers themselves among others. According to Schmitt (2002) every teacher meets several learners for whom reading is laborious and learners who think they cannot read. Classroom effectiveness of teachers heavily depends on their knowledge of the subject matter and their pedagogical skills (Edem, 2005). According to Kalindi (2005) most teachers are not oriented towards helping poor readers in their class. This means that teachers in their training were not adequately prepared to teach all children according to their individual needs. Even in cases where reading materials are available, reading skills of poor readers are not improved because the most important person who is the teacher is faced with the challenge of not knowing how to help the poor reader. Therefore, teachers should read a lot, go out to seek knowledge on how to

assist poor learners and those with special needs when they come across them in the classroom

The students are also faced with several challenges when it comes to teaching and learning reading ranging from lack of interest in reading, lack of reading material, L1 interference, and lack of familiarity with their vocabulary items, home background and lack of adult readers. Nnamdi (2007) believed that students are faced with the challenges of mispronunciation, sight, vocabulary and lack of comprehension in learning to read. Some students find reading and comprehension laborious due to the vocabulary content of the reading material, home background and lack of adult readers as models (Onukaogu, 2003). This means that the students are faced with challenges from reading materials which is not available and where one is available, the vocabulary is not relevant to the learner's background, and the interference of the learner's first language in learning to read. As such reading materials should be made available the contents should be made easy and related to the learner's background for a successful reading and comprehension. In order to improve the teaching and learning of reading comprehension the researcher is of the view that the use of computer assisted instruction to teach reading comprehension may lead to better performance by the students.

Computer Assisted Instructions are interactive and can illustrate a concept through attractive animation, sound and demonstration. It allows students to progress at their own pace and work individually. Computers provide immediate feedback, letting students know whether their answer is correct or not. So many researchers have used computer assisted instruction in different subject areas to improve

effective teaching and learning. For instance, Hall, Hughes & Filbert (2000), examined the effect of computer assisted instruction in reading by students. Their findings indicated an improvement in reading when computer assisted instruction was used for the students. Also Onasanya, Daramola & Asuquo (2010) investigated the effect of computer assisted instruction package on Secondary School Students in Introductory Technology in the study, the result was also positive. Also Ifeakor (2006) examined the effect of commercially produced computer assisted instructional package on students' achievement and interest in secondary school chemistry, In her study she found that the commercially produced computer assisted instructional package had positive effect on the students' achievement and interest.

Apart from facilitating reading, Computer Assisted Instruction permits the utilization of the human sense of hearing, seeing and manipulation (touching). As a new phenomenon in the teaching and learning process, the use of Computer Assisted Instruction has not been well appreciated. Computer Assisted Instruction is seen by Chambers as a costly endeavor in the education process and one fraught with many challenges, which makes it worthless. It is against this background that the study on the effect of Computer Assisted Instruction on students' performance in Reading Comprehension in Junior Secondary Schools is conceived. This is with a view to providing information which can be taken advantage of by English language teachers in the course of teaching reading.

### **1.1 Statement of the Problem**

In spite of the vital role of the English Language in Nigeria, Nigerian students are unable to acquire proficiency in the skills of language especially

reading. The way it is taught is not producing the desired effect, perhaps due to some problem associated with classroom practice. Poor performance also has been observed in school subjects most especially English Language among the Junior Secondary School Students. Hassan (2007) observed that the poor performance of JSS Students in English Language could be connected to their inability to read effectively, because they do not comprehend what they have read. This translates to the performance of students in other subjects in both internal and external examinations

From the researcher's observation in Junior Secondary Schools in Minna, most of the students if not all are not interested in Reading Comprehension lessons. Teachers lack the teaching strategy of imparting the required knowledge to their students, their methodology is outdated and not in tune with the computer age, as a result of this therefore, the researcher became curious to find out how Computer Assisted Instruction can be used to solve these problems in Junior Secondary Schools in Minna Niger State.

Generally, poor performance of students Reading Comprehension has been a subject of concern to many stakeholders in education (Olatoye, 2002). According to West African Examination Council (WAEC 2015 & 2016) examiner reported poor performance of Junior Secondary school students in Reading Comprehension in Minna Niger State. Report from NECO (2017) showed that students' performance at the junior secondary schools Reading Comprehension Examination in Minna was very poor; the report showed that students have less than 37% pass rate in Reading Comprehension. The poor performance of the students has been attributed to lack of

interest in the topic on the part of the students and approaches or methods of teaching Reading Comprehension (Ogwa, 2002). The Federal Ministry of Education (2007) advocated for a change in the strategies of instruction on the students by using Information and Communication Technology facilities like the Computer Assisted Instruction (CAI). The approach according to UNESCO (2002) requires adjustment of the educational institute to embrace new technology and appreciate computer technology as a learning tool to transform the present teacher - centered and textbook bound classroom into student - centered interactive knowledge environment.

It is clear therefore that lack of interest on the part of the students and teachers' inability to use proper teaching strategies, lack of adequate reading materials contribute to poor performance of students in reading Comprehension. There appears to be a general consensus in the literature that the use of computers in teaching reading would facilitate better understanding and practice.

It is with this view in mind that this study investigates how Computer Assisted Instruction can enhance or facilitate effective Reading Comprehension among students of Junior Secondary Schools in Minna, Niger State.

## **1.2 Objectives of the Study.**

The broad objective of this study is to examine the effect of computer assisted instruction in teaching reading comprehension skills in junior secondary schools in Minna Niger State. In this regard the following objectives are addressed in this research, to:

1. examine the effect of Computer Assisted Instruction on students' performance in Word Meaning among Junior Secondary Schools in Minna Niger State.

2. identify the effect of Computer Assisted Instruction on students' performance in the Identification of Main Idea among Junior Secondary Schools in Minna Niger State.
3. determine the effect of Computer Assisted Instruction on students' performance in Comparing and Contrasting of ideas among Junior Secondary Schools in Minna Niger State.
4. ascertain the effect of Computer Assisted Instruction on students' performance in Summarization among Junior Secondary Schools in Minna Niger State.

### **1.3 Research Questions**

To guide the study, the following research questions were put forward:

1. What is the effect of Computer Assisted Instruction in Students' performance in Word Meaning among junior secondary school's students in Minna Niger State?
2. To what extent is the effect of Computer Assisted Instruction on students' performance in the Identification of Main Ideas among junior secondary schools' students in Minna Niger?
3. What is the effect of Computer Assisted Instruction in students' performance in Comparing and Contrasting of ideas among Junior Secondary Schools Students in Minna Niger State?
4. What is the effect of computer Assisted Instruction in students' performance in Summarization among Junior Secondary Schools Students in Minna Niger State?

### **1.4 Research Hypotheses**

The following hypotheses were postulated to be tested.

1. There is no significant difference between the mean scores of Experimental and control group in Word Meaning among Junior Secondary Schools Students in Minna Niger State.
2. There is no significant difference between the mean scores of the Experimental and control group in the Identification of Main Ideas among Junior Secondary Schools Students in Minna Niger State.
3. There is no significant difference between the mean scores of the experimental and control group in Comparing and Contrasting of ideas among Junior Secondary Schools Students in Minna Niger State.
4. There is no significant difference between the mean scores of Experimental and control group in Summarization among Junior Secondary Schools Students in Minna Niger State.

### **1.5 Significance of the Study**

The findings of this study will be significant in several ways. It is hoped that among other things: Help teachers to give students tasks in hierarchical order. Help teachers to move from simple to complex tasks since learning new knowledge is dependent on what is already known. The result will encourage teachers to use multiple media in presenting instructions to students. It will also help teachers to vary their instructional approaches, develop creative skills and help in making their lessons interesting as well as achieving their instructional objectives.

The result of this study is expected to be useful to the learners as it will provide opportunity for students to practice basic skills, learn more basic concepts on their own and at their own pace. Since students learn differently and at different

pace, abstract concepts are simplified and individualized learning will be encouraged. It can lead to arousing students' interest in Reading Comprehension, make them to be creative and help in the generation of ideas to solve world problems. By the use of digital videos, Instructional package, the interest of the learners for irrelevant movies and entertainment programs could systematically be transferred to a more productive and educative pursuit.

The findings could hopefully assist curriculum planners to include in the curriculum for Junior Secondary School level instructional materials / strategies that would help in bringing about meaningful learning. Curriculum planners will always consider the entry behavior of students as they plan the curriculum. It may also provide locally produced computer instructional package, the use of which would consequently build up teachers' and learners' confidence in the subject matter and to be Information and Communication Technology (ICT) compliant. This is to give direction and confidence to the teacher whose job it is to put the curriculum into use and to ensure the attainment of specific objectives of learning Reading Comprehension.

The findings of this study will be of immense benefit to the nation as it could lead to the turnout of learners with solid foundation in Reading Comprehension. This study may be a spring board for future researchers who might wish to embark on a similar study in English or other disciplines.

Educational Researchers and scholars will benefit from the findings of this study as it will provide them with academic literature on the effect of Computer

Assisted Instructional technique used in this study on students' performance on Reading Comprehension.

### **1.6 Scope and delimitation of the Study**

The researcher examined the effect of Computer Assisted Instruction on students' performance in Reading Comprehension in Junior Secondary Schools in Minna Niger State. The topics covered in the study are the Reading Comprehension skills of Junior Secondary School students in Minna Niger State.

This study, "Effect of Computer Assisted Instruction on Students' Performance in Reading Comprehension in Junior Secondary Schools in Minna Niger State" was limited to two Junior Secondary Schools (1) out of the 12 Junior Secondary schools in Minna due to unavailability of functional computers, standby generators and accessible roads. Among the many skills of Reading Comprehension of Junior Secondary School curriculum the study was limited to four skills namely: Word Meaning, Identification of Main Ideas, Comparing and Contrasting of ideas and Summarization.

## CHAPTER TWO

### REVIEW OF RELATED LITERATURE

#### 2.0 Introduction

Literature review is an important component of any research work. The researcher examines the various literatures related to the topic of study through the following sub themes: -

- 2.1 Conceptual Framework
  - 2.1.1 Concept of Reading Comprehension
  - 2.1.2 Strategies for Reading Comprehension
  - 2.1.3 Importance of Reading
  - 2.1.4 Impediments to Reading Comprehension
  - 2.1.5 Comprehension Levels
  - 2.1.6 Determinants of Students' Performance in Reading
- 2.2 Concept of Vocabulary Development
  - 2.2.1 Importance of Vocabulary Development
  - 2.2.2 Essential Components of Vocabulary Development
- 2.3 Importance of Instructional Media in Education
  - 2.3.1 Information and Communication Media in Education
- 2.4 Concept of Computer Assisted Instruction
- 2.5 Computer Assisted Instruction on Students' Performance
- 2.6 Theoretical Framework
  - 2.6.1 The Bottom up Approach
  - 2.6.2 The Top Bottom Approach
  - 2.6.3 Anderson's Schema – Theoretical Model of Reading
  - 2.6.4 Thorndike's Theory of Connectivism
- 2.7 Review of Related Empirical Studies
- 2.8 Summary of Literature Review and Uniqueness of the Study

#### 2.1 Conceptual Framework

This study explained concepts from different perspectives as: Concept of Reading Comprehension, Skills for Reading Comprehension, Importance of Reading Comprehension, Impediments to Reading Comprehension, Comprehension Levels, Determinants of Students' Performance in Reading Comprehension, Concept of Vocabulary Development, Importance of Instructional Media, Instructional Communication Technology in Education, Concept of Computer Assisted Instruction and Computer Assisted Instruction and Students' Performance respectively.

### **2.1.1 Concept of Reading Comprehension**

Reading comprehension is the act of understanding what you are reading, it is an intentional, active, interactive process that occurs before, during and after a person reads a particular piece of writing. According to Okanlawon (2011) reading comprehension includes all processes related to constructing meaning from written language (including textbooks, students' guide and other forms of written language). Abioye (2010) equally upholds the same view. To him, reading comprehension is processing written language to get ideas, relating ideas to experiences, organizing ideas, evaluating ideas and utilizing ideas. The reader equally must have intelligence, language and experience. Constructing meaning indicates that often readers go beyond the meaning explicitly contained in the text and add to that meaning based on their experiences and their ability to infer additional or deeper meaning.

According to Jennifer (2010) Reading Comprehension is at the heart of what it means to really read by thinking and understanding and getting at the meaning behind a text. Furthermore, Taiwo (2002) defines Reading Comprehension as the reason for reading. If readers can read the words but do not understand what they are reading, they are not really reading. In addition, Snow (2002) elaborated that Reading Comprehension is an active process and the reader must interact and be engaged with text for it to work well. Reading comprehension is the level of understanding of a text/message. This understanding comes from the interaction between the words that are written and how they trigger knowledge outside the text/message (Keith, Barbara, Charles, David & Mark, 2001). To Agwu and Maduabuchi (2009), they believe that it is sufficient to say that reading

comprehension is significantly promoted by attention to vocabulary growth. Taiwo (2002) reiterates that vocabulary seems to be the most significant determinants of Reading Comprehension. Enyi and Ereke (2011) believe that Reading Comprehension is a very complex process which is anchored on understanding of what one has read. Some of these factors may include the nature of the reading materials, socio-cultural environment of the learners' difficulty level of the reading material.

Reading Comprehension is "the process of simultaneously extracting and constructing meaning through interaction and involvement with written language (Snow, 2002). To Kintsch & Rawson (2005), reading comprehension is widely agreed to be not one, but many things. At the least, it is agreed to entail cognitive process that operates on many different kinds of knowledge to achieve many different kinds of reading tasks. Emerging from the apparent complexity however, comprehension occurs as the reader builds one or more mental representations of a text message. Among these representations, an accurate model of the situation described by the text is the product of successful deep Comprehension.

### **2.1.2 Strategies for Reading Comprehension**

There are many reading strategies that appear to be very important according to a multitude of researchers. It is a difficult task to decide which strategies are the most significant. Cunningham (2004) suggested necessary strategies readers need to use when reading. These are: -Background knowledge, Predicting Word meaning, Self-monitoring and self-correcting, Identification of Main Ideas and Summarization, Comparing and Contrasting, making inferences and questioning.

### **2.1.3 Background Knowledge**

One of the most important pre-requisites for reading is the background knowledge you bring to it. Cunningham (2004) argued that background knowledge is a crucial component of Reading Comprehension. Hiebert (2004) believed that the amount of prior knowledge a reader has, can be a very strong determinant of how much he/she will be able to understand the text he/she is reading. Taiwo (2002) also believed that readers who had a well-developed knowledge base are more likely to have a strong ability to recall relevant information. Background knowledge helps students to interpret reading materials in an individual way. Thus, it is important that teachers teach students how to use their background knowledge as a strategy for comprehending text. As such students need to use background knowledge to form a picture in their minds; they actually need to be able to see what is happening in a story.

### **2.1.4 Predicting**

When students make predictions they are deciding their purpose for reading. Prediction activities work hand in hand with background knowledge. As students synthesize what they know with the text they are reading it helps them determine a purpose for reading. Using their background knowledge their goal becomes finding out, or predicting what is going to happen next. Further, they are engaged in generating prediction prior to reading by first drawing upon background knowledge. Good readers are constantly forming hypothesis about what is to come in the passage they are reading like so many other comprehension skills this requires knowledge about the content and about the structure of what is being read. (Taiwo, 2002).

### **2.1.5 Word Meaning, self-monitoring and self-correcting**

When students self-monitor and self-correct they are demonstrating an ability to recognize that what they are reading is not making sense and applying various strategies to solve the problem. These are also known as “fix up strategies”, which are strategies that students use when they realize that their Comprehension is not proceeding well (Sedita, 2005). Hiebert (2004) discussed critical literacy, a concept that focuses on how reader’s problem solve and reason with print she argued that students need to become self-regulated learners. These are learners, she asserted, who develop purpose for what they are about to read. Similar to when applying predicting skills, when readers apply self-monitoring strategies they are constantly asking themselves whether or not what they are reading makes sense to them. During this monitoring process, if they find a word or an idea does not quite fit with what they already know they will apply their self-correct skills in order to fix the problem.

According to Sedita (2005) good readers are able to expect problems in reading and fix them up as they occur. When a student comes across an unfamiliar word, he or she needs to decide whether to re-read the sentence, read ahead, sound the word out, or look it up in the dictionary. Graves, Juel & Graves (2004) stated that it is important that teachers are aware of Meta-cognitive behavior and its importance as a monitoring device as students assess their comprehension and apply fix-up strategies when comprehension fails.

#### **2.1.2.4 Identification of Main Ideas and Summarization**

Identifying the main events or ideas in a story is something that good readers also do. They are constantly pulling out ideas from the text they are reading and determining what the main points are in each segment of the reading passage. In addition they have an ability to recognize and discuss key events in a story. Ikonta (2002) argued that skilled readers have an ability to select the information they will need in order to understand the reading passage. Further, these readers also have the ability to ignore information that is not important.

Summarization is a strategy that many students have difficulty with. It is very closely related to other strategies above. However, Hiebert (2004) asserted that Summarizing is “a broader, more synthetic activity for which determining importance is necessary but no sufficient condition”. Moreover, it involves the ability to call on other strategies in order to gain a clear understanding of text. This strategy is an important one because it helps them build information framework. Graves & Watts-Taffe (2002) Summarization can be defined as: deleting unimportant and redundant information, categorizing information and using the author’s main ideas and creating your own main idea if the author did not clearly state his/hers. Clear Summarizing brings into play all of the previous strategies. Thus students are involved in using all of the reading strategies in order to build a scaffold toward increased Comprehension.

#### **2.1.2.5 Comparing and Contrasting**

Comparing and contrasting can be determined as a reading comprehension passage which has the purpose of demonstrating similarities and differences between

two or more subjects. Comparing focuses on similarities while Contrasting focuses on the differences. In fact, a compare and contrast comprehension passage may cover any topic. However, all proposed arguments for or against must be relevant and objective. A compare and contrast comprehension passage should focus only on similarities and differences that correspond to the topic. According to Ikonta( 2002) to compare and contrast ideas, people, events, objects is something that good readers do by constantly gathering ideas from the comprehension passage to determine the key content on what to compare and contrast.

#### **2.1.2.6 Making Inferences and Questioning**

Making Inferences and questioning is another strategy that even older students find quite tedious. This may be due to the fact that students are accustomed to their teachers giving the questions. But if the teachers are asking all of the questions students are not going to become strategic readers, instead, they need to learn to ask themselves questions as they read. Snow (2002), asserted that students who generate their own questions lead to increased Comprehension of texts. By having students do this it forces them to think more deeply about the author's words and intentions, giving them a goal for reading.

Further, Sedita (2005) asserts that the meaning created by the readers will not be identical to the author's intended meaning because it is the readers who decide what inferences and conclusions will be drawn by creating their own meanings from the text. This will depend on many factors including the reader's prior beliefs and knowledge which are used to help confirm, reject or suspend judgment of new interpretations (Uwaji, 2001).

### **2.1.3 Importance of Reading**

The ability to read is one of the most important aspects of human accomplishment. Through reading the knowledge of faraway events, events that are long past and very current ones are acquired. Nnamdi (2007:262) agrees that reading widens one's scope and enables one to make new friends. It opens the windows of the world to children. He also quoted (Ikonta, 2002) who believes that skills of reading with understanding is a pre-requisite to extraction of information from books.

Reading is necessary for safety and efficiency in the home. A person must read manuals of instruction for household equipment, labels on medicine packages, foods, cosmetics and so on. According to Nnamdi (2007:262) to learn some jobs, one has to be able to read efficiently, through habitual reading, a person's perception of the world is sharpened and the person is equipped for active participation in the development of society.

Ezenma (2007:204) asserts that reading is one of the salient activities in the learning process. It is a means of acquiring literacy. A teacher who has a bad reading culture cannot keep abreast with current information in the education enterprise. According to Ikonta (2002) the circumstance of modern life demands the development of good reading habits for the implementation of the natural goods and on individual level, for the fullest and most beneficial participation in the society". An uninformed teacher cannot give out what he does not have. Obanya (2002:12) clearly said that no educational system can rise above the level of its teachers.

Reading is very important in the life of an individual. It is an important skill to help people learn from human knowledge and experience. Through reading,

knowledge has greatly contributed to the growth of mankind. Reading is the fastest and simplest way to raise people's educational level (Ikonta, 2002). Reading is like opening the door of understanding to human past, where it can serve as a looking glass for our present. Reading also stimulates the development of brain cells, reinforces language skills, enhances organizational abilities, improves one's temperament and poise, and provides strength to endure frustration. In short, reading is the best and only way of enabling human to absorb new experience and replace old view

#### **2.1.4 Impediments to Reading Comprehension**

Many studies suggest that not only intelligence but appropriate levels of cognitive development including vocabulary and concept formation are prerequisites to Comprehension (Snow, 2002). In addition, the tone of the writer, his attitude towards a topic and the reader, all apparently influence the Comprehension of the learner.

Smith (2002) maintained that Comprehension is the acquisition of information and meaning or the extraction of meaning from a text. Snow (2002) outlines some causes of breakdown in Reading Comprehension as follows; failure to recognize letters, reader's failure to recognize a particular lexical items, failure on the reader's part to recognize the grammatical relations which exist between the lexical units or even the failure to grasp the semantics of a particular grammatical item in a particular context; failure on the reader's part to grasp an author's attitude to his writing and failure of the reader to apply logical principles adequately.

According to Opara (2007: 89). Among the impediments affecting reading is the television, which has said to have eroded the reading time. Eze (2007: 263) quoting Uwaru (2004) whose result in a research showed that 60% of the seventeen secondary schools in Nsukka Local Government Area in 2002/2003 academic year disagreed with the fact that English Language teachers inculcate critical reading ability in them. The above assertion was derived from the fact that the teachers do not make book available to the students, provide class magazines or encourage them to subscribe, do not teach them how to use the library, and do not give them practice on how to read quickly within a time limit. Such shortcoming deprives students of the opportunity of practicing sustained efforts in reading.

The bilingual and multilingual nature of Nigeria also affects reading in Nigeria. The imbalance between English and indigenous language has resulted in a situation of unbalanced bilingualism whereby most educated Nigerians read and write English better than they read and write any Nigerian languages. According to Unoh (2005: 146) whichever way we look at it, we are bound to perceive that the bilingual or multilingual situation in Nigeria poses a serious problem, which if not carefully handled, will negate our efforts at improving the reading abilities of Nigerians.

According to Azikiwe (2007) bad method of teaching especially in the development of language skills contributes its own quota to reading failure in Nigeria. In a similar statement Unoh (2005:146) said that English language teachers are plagued with problem of confusion in the choice of methods of teaching reading to beginners. The approach or method by which the beginner in reading learns to

read can be a crucial factor in the determination of his attitude to reading tasks, and how effectively he learns to read and reads to learn.

Another impediment to reading in Nigeria are the lack of adequate facilities and personnel. There are no adequate facilities and personnel for reading instruction; for training reading specialists and reading consultants. According to Unoh (2005 :148 ) unfortunately experience and research evidence have shown that these facilities and personnel are seriously inadequate for our needs and are, in certain cases, virtually non-existent in Nigeria. There are also problems which generally affect reading instruction among students. Head movement, this is the movement of head from one side to the other while reading which is both unnecessary and time wasting as it slows down reading speed. Students should be made to understand that it is the eye muscle that moves not the head.

Pointing at words: this is an impediment to reading whereby poor readers point out line with their fingers, rulers, pencils or pen as they read. Reading and comprehension are affected with this habit. The eye can move faster than the hands or fingers. By pointing to individual words the reader is prevented from taking the whole sentences and phrases. This impedes the understanding of thought and ideas. The eye muscle should be used instead.

Vocalization: This is the art of whispering or saying the words to oneself as one reads, particularly where it is expected to be silent reading. It also refers to any movement of the vocal apparatus for example tongue, throat or vocal cords. This

can adversely affect reading rate and hinder the ability to comprehend the material being read. It should therefore be avoided.

Regression: This habit results from fatigue and lack of concentration. A reader glances back repeatedly and re-reads words, phrases and sentences that he has already read. Readers should be flexible before a reading task.

### **2.1.5 Comprehension Levels**

There are however three levels of Comprehension. These are: Literal, interpretive and critical Comprehension. Interpretive and critical Comprehension dovetail and the distinction between them is not glaring. Similarly, both Interpretive and Critical Comprehensions are treated as Inferential Comprehension, for Inferential Comprehension subsumes both (Onukaogu, 2003).

Literal Comprehension is the skill of understanding directly stated facts, ideas, and details as well as the understanding of how a term or word is used in a context. Literal Comprehension is a basic or foundation skill which every teacher must and should endeavor to teach the learner. In this level of Comprehension, authors use details to shed light on the ideas or points they present. It also shows how authors explain words in context to promote the understanding of words that are very important in Reading Comprehension. This is because words are the units which authors combine and manipulate in order to convey their messages, ideas, and opinions.

Inferential Comprehension is a much higher order skill than literal comprehension. Inferential Comprehension is reading between the lines to

understand or figure out what an author implies but which is not directly stated in the text. Inferential comprehension is reinforced when the reader uses non-visual elements to arrive at the meaning that the text conveys which are not directly stated in it. It also entails making value statements in which the quality or correctness of the text is evaluated. Besides, it also entails understanding the tone and mood of an author as well the purpose for which the author wrote the text. Similarly, Inferential Comprehension can only be possible where the reader has a rich and diverse non-visual element. Whereas, Literal Comprehension relies extremely on the visual element of the writer's text, Inferential Comprehension relies heavily on the non-visual element. Pertinently, inferential comprehension is an educated guess. It is an educated guess because a number of factors must inform the guess. Inferential Comprehension is a way of thinking, during the thinking one draws from one's previous experience (Onukaogu, 2003)

Critical Comprehension at this level of Comprehension, the reader is assumed to have applied both Literal and Inferential to comprehend the message of the writer. The reader at the Critical level of Comprehension may agree or disagree with the author's point of view. The reader begins to criticize, evaluate and question the techniques used by the author in the text (Enyi and Ereke, 2011). At this level the reader is assumed to have understood the information or messages presented in the text by the writer.

Computers have been studied as a means for developing the basic reading skills needed for successful reading ability. These skills cover several broad areas including Comprehension and retention, phonological word analysis, and

Vocabulary and sight word recognition. Researchers were not in agreement as to the effects of Computer Assisted Instruction on Comprehension. Folaranmi (2007) reported no statically significant differences in students' Reading Comprehension for CAI than when they receive traditional instruction.

In a print versus Microcomputer-generated text study, urban students with mixed ethnicity of high ability reading levels showed no significant differences in performance while low ability reading students showed significant improvement (Liverpool, 2002). The Microcomputer did not hinder the performance of poor readers any more than print. However, the microcomputer group scored significantly better than the print group on comprehension.

Computer Assisted Instruction in language skills assisted teachers in improving students' skills (Yusuf and Afolabi, 2010). Several researchers however found that Computer Assisted Instruction improved Reading Comprehension and achievement. Dunn (2002) investigated the effect of Computer Assisted Instruction on Reading Comprehension of Ninth grade students and the students had positive responses to the use of Computer Assisted Instruction in Reading Comprehension. Cotton (2001) conducted a study using 64 five-year-olds who were divided into four similar groups. They cited significant improvement for those who had low initial reading attainment and did the computer activities compared to the low attainment control groups. Children in this group developed more efficiency in learning to read and also in Comprehension.

Most teachers, as well as students had positive attitudes towards computers. Liverpool (2002) stated that “Although participating teachers expressed positive comments about using microcomputers in the class room, they were sometimes reluctant to give up their direct instructional time with students”. However, most teachers did not hesitate to agree that a combination of technology and the personal touch was the best method for promoting students’ growth. Teacher acceptance of Computer Assisted Instruction was, at times less than whole - hearted. But one of such instance showed teachers changed their attitudes from the beginning of the study and were most enthusiastic about the help Computer Assisted Instruction gave in improving students’ Reading Comprehension skills (Cotton, 2001).

Computers are particularly helpful in saving both teachers’ and students’ time. The computer reduced substantially the amount of time students needed for learning (Fabunmi & Okorie, 2000). Teachers found Computer Assisted Instruction most helpful in providing drill and practices for needed skills through varied and lively formats. Computer Assisted Instruction allowed children to choose activities and provided automatic feedback. Computer Assisted Instruction was effective in raising Reading Comprehension achievement especially when it was used to supplement regular teacher presented instruction. Also, Computer Assisted Instruction produced a decided advantage in reducing the time it took to learn. Some investigators believed that computers were more effective with younger students. However, Computer Assisted Instruction was very effective with all ages and ability groups. Computer Assisted Instruction had a positive effect on students and teacher attitudes and comprehension; Computer Assisted Instruction provides teachers with a

tool for enhancing teaching and learning in their classrooms. Computer Assisted Instruction has the potential to offer students with learning disorder self-paced, individualized instruction that includes immediate feedback and multiple opportunities for practice (Hall, et al, 2000). Hall, et al (2000) reviewed 17 Studies on Computer Assisted Instruction in reading intervention for students with learning disorder. They noted that 3 of these studies focused on strategy instruction and included improving Reading Comprehension as a goal.

#### **2.1.6 Determinants of Students' Performance in Reading**

Education is a very costly project for nations and individual families. Therefore, it is very crucial to understand the factors affecting its provisions and the performance of learners. The majority of studies on students' performance has been related to various aspects of education such as; school quality, teaching quality, teacher remuneration, class size and learners' characteristics,

Class size are very important in the teaching and learning activities particularly when students' academic performance is being considered, class size is an important factor in relation to students' academic performance in relation to reading. There is a consensus among various researchers and educationists that the smaller the class size or teacher-pupil ratio, since students' achievement decreases as class size increases. Many studies have pointed out the significance of teacher- pupil ratio to cognitive learning in the school (Fabunmi & Okorie, 2000). The National Policy on Education (2014) recommended that the teacher- pupil ratio should be 1:35 for primary and 40 for secondary schools. In emphasizing the importance of class

size to the learning/teaching processes Onukaogu (2003) in his own study found that class size had negative co-efficient with examination.

### **2.3 Concept of Vocabulary Development**

Vocabulary Development is an integral part of Reading Comprehension without which the students cannot understand what message the writer is trying to pass across. Therefore, it is very vital for any reader to acquire vocabulary to be able to go along with the writer which will bring about understanding.

Vocabulary Development refers to the knowledge of stored information about the meaning and pronunciation of words necessary for communication. Vocabulary Development is important for beginning reading in that when a student sounds out a word, he/she is also determined if the word makes sense based on his/her understanding of the word. Vocabulary Development is a primary determinant of reading comprehension. It is the development of certain vocabulary skills that you need to master so that you can acquire a substantial number of new words for effective study and communication. Chukwuma & Otagburuagu (2002) say that “Vocabulary means the word-stock of a language available to its users”. Readers cannot understand the content of what they are reading unless they understand the meaning of the majority of words in the text. Lehr, Osborn, Hiebert & Kamil (2004) opined that in order to communicate effectively using oral and print language, we must be able to flexibly use words that we recognize and understand. Effective reading requires two types of vocabulary, word recognition vocabulary and word meaning ( Blachowicz, & Fisher, 2005).

### **2.3.1 Importance of Vocabulary Development in Reading comprehension**

Vocabulary development is very important to Reading Comprehension. Readers cannot understand what they are reading without knowing what most of the words mean. As children learn to read more advanced text, they must learn the meaning of new words that are not part of their oral vocabulary. According to Cummingham (2004) vocabulary development is important for beginning reading in that when a student sounds out word, he/she is also determining if the word makes sense based on his/her understanding of the word. If a student does not know the meaning of the word it is difficult to check for the word that fits. Vocabulary development is also a primary determinant of Reading Comprehension. Readers cannot understand the content of what they are reading unless they understand the meaning of words in the text.

The importance of vocabulary in Reading Comprehension is an intriguing and complex one. To construct a mental representation of text, that is, to understand text meaning, one will have to be able to decode the printed messages (Anderson, 2011). According to National Information Technology Development Agency Project (NITDAP, 2003) in Reading Comprehension, vocabulary knowledge is important to understanding text. When students do not understand at least 90% of the words in the text, they do not adequately understand what they read (Sedita, 2005). Research suggests that students acquire 2000 to 3500 new words a year and know the meaning of approximately 50,000 words by the time they graduate from school (Graves, et al 2004, Hiebert, 2004).

### **2.3.2 Essential Component of vocabulary Development**

Students can only learn through indirect exposure to words in a variety of language contexts. For example, students can learn vocabulary when they engage in conversations with others, through reading aloud, and through independent reading (Armbruster, Lehr, & Osborn, 2001). Students can learn vocabulary directly when teachers target individual words and promote word-learning strategies (Armbruster, et al 2001). According to Graves, & Watts - Taffe (2002), there are four essential components of vocabulary development as explained below.

#### **2.3.2.1. Providing rich and varied language experiences;**

According to research, students' vocabulary increases when they are exposed to new words through various language experiences, such as reading aloud, independent reading, and oral discussions (Graves & Watts - Taffe, 2002). In addition, when students are exposed to a wide variety of reading genres, from biographies to fairy tales to how to read books, they learn different types of vocabulary. In order to be exposed to vocabulary that is more sophisticated and academic, students need to spend time reading books and having books read to them. Several researchers have concluded that reading aloud has the potential to significantly increase students' vocabularies (Lehr, et al, 2010).

Combining reading aloud with discussion about the text and promoting independent reading experiences outside of school hours are both effective strategies for expanding children's vocabularies. It is essential that children be provided time to engage in oral language activities such as discussing the book in class after the reading aloud and discussing it at home. Students' books contain many rare words as

compared to adult conversations. When students are exposed to these rare words, they acquire the vocabulary to support their reading of the increasingly complex text they encounter as they progress through school (Cunningham, 2004).

The volume of reading greatly affects a student's vocabulary knowledge. Students who can read with ease tend to read more difficult material and are thus exposed to a greater number of rare words. Even striving readers will increase their vocabulary if they engage in reading (Cunningham, 2004).

### **2.3.2.2 Teaching Individual Words Explicitly**

In learning vocabulary indirectly through various reading and writing activities, students benefit from direct and explicit teaching of individual words (Graves, et al 2004). Although students will learn many words from the various classroom language experiences, explicit instruction of carefully selected words is needed for students to understand content- specific text. Through the direct teaching of key words, students acquire the in - depth knowledge they need in order to understand the meaning of key words they will encounter while reading. The National Reading Panel found that direct instruction is highly effective for vocabulary development (NITDAP, 2003).

### **2.3.2.3 Teaching Word – Learning Strategies**

Word learning strategies are the tools students can use to figure out the meaning of unfamiliar words and increase their word knowledge. Direct teaching of word – learning strategies can help students become better independent words – learners (Baumann, et al, 2000; Graves, et al 2004; NITDAP, 2003). The following are effective word – learning strategies according to Baumann, et al, 2003., Graves,

2004., Lehr, et al., 2010., NITDAP, 2003). Identifying and using context clues, knowing how to use word – part information, using a dictionary accurately.

#### **2.3.2.4 Fostering Word Consciousness.**

The last component of promoting vocabulary development is fostering word consciousness. Word consciousness can be thought of as “an awareness of an interest in words and their meaning” (Graves, et al 2004). This also includes word play and expressively used words such as idioms and figurative language (Lehr et al, 2010). Teachers can increase students’ vocabulary by helping them develop word conscious behavior such as showing strong interest in words, noticing words, and learning new words. Personal interest and excitement in new words can be contagious. Encouraging students to be word conscious, help them to become lifelong learners of new words. Ways to foster word consciousness include playing word games, telling tongue twisters or jokes, and highlighting interesting words found in the text (Lehr, et al, 2010).

## **2.4 Importance of Instructional Media in Education**

Ezenma (2007) suggests that the quality of science especially chemistry teaching and learning can be improved through the use of appropriate instructional media. In science most of the concepts are acquired during instruction. The Instructional strategy employed by the teacher plays an important role in concepts acquisition and meaningful learning.

According to Ajelabi (2000) media are channels through which messages, information, ideas and knowledge are disseminated. They are collection of materials,

equipment and approaches or strategies that can be used effectively for communication. Whenever such materials, equipment and strategies are used for teaching and learning, they are referred to as instructional media.

Effective teaching and learning in any subject at any institution are dependent on the instructional strategies used. The Instructional method, strategies and or materials used is a major factor responsible for the level of achievement as well as retention in any subject by students (Ajagun, 2003). According to Ofoegbu (2008) teaching is changing and in many ways becoming a more difficult job because of increasing expectations which according to her as stated in Wims and Lawler, (2007) include:

- i. We are living in an age of information overload with the expectations that students will learn higher level skills such as how to access, evaluate, analyze and synthesize vast quantities of information.
- ii. Teachers are expected to teach students to solve complex problems that require knowledge necessary across many subject areas even as they are held accountable for the teaching and learning of isolated skills and information.
- iii. Teachers are expected to meet the needs of all students and more than toward fulfillment of their individual potential.

According to Ofoegbu (2008), technology can assist with some or all of these expectations and make teachers and their students more successful. Technological progress impacts on our everyday life with an ever increasing frequency and effect. How advances in technology might influence teaching and learning must be of

special importance to all English educators. According to Hollingworth (2002), there is the need to adopt a proactive and informed attitude towards our teaching to make most effective use of emerging technologies. The effective use of these emerging technologies will lead to an improved teaching and learning in our schools. Such technologies as computer and digital video when used effectively, will lead to improvement of teaching and learning process.

#### **2.4.1 Information and Communication Technology and Education**

Information and Communication Technology (ICT) is defined as computer based tools used by people to work for the information and communication processing needs of an organization. It encompasses the computer hardware and software, the internet and several other devices such as video, audio, photography, camera etc. that converts information, images, sound, motion and so on into common digital form (Yusuf and Onasanya, 2004). It is an eclectic application of computing, communication telecommunication and satellite technology (Yusuf, 2005).

Information Technology (IT) which is a component of ICT refers to the creation, storage and processing of data including hardware system and software application. Rahman (2002) defines Information technology as the technology of creating, processing, storage, retrieval and transmission of data and information. These include telecommunication, satellite technologies, electrical, and electronic computing which allow users to communicate and manipulate information electronically.

Yusuf (2005) suggests that ICT can help students to:

- i. ask questions, predict and hypothesize,
- ii. observe, measure, record and manipulate variables,
- iii. interpret their results and evaluate scientific evidence and
- iv. present and communicate their findings in a variety of ways.

The use of ICT can extend and enhance students' understanding of science through simulation and modeling. It can help students to understand phenomena which may be too slow, too fast, too dangerous or too expensive to carry out in the schools (Rahman, 2002). The National Policy on Education of Nigeria (NPE, 2014), and with a particular reference to Science and Technology, considered ICT as an important tool for laying a solid foundation of Education System. ICT includes radio, Television, Videos, Computer sensors, Satellite connections, internet and all the software which are used by teachers for teaching and learning in order to achieve a meaningful learning by the students (Ajagun, 2003).

Literature dealing with technology and pedagogy attests to the powerful impact ICT can have on the teaching and learning process (Yunus & Salihi, 2012).

ICT has three positions in the curriculum and these are:

- i. Learning about ICT
- ii. Learning with ICT and
- iii. Learning through ICT.

Learning about ICT refers to ICT concepts as a subject of Learning in the school curriculum while learning with ICT is concerned with the use of ICT as a

medium to facilitate instruction. While sharing this view Olaofe (2005) maintains that learning through ICT refers to the integration of ICT as an essential tool into a course curriculum, such that the teaching and learning of that course/curriculum is no longer possible without it.

The use of information and communication technology is becoming an integral part of education in many parts of the globe. Nigeria is left behind as ICT is gradually finding its way into the educational system (Olaofe, 2005). Despite the limitations brought by economic disadvantages (Nwagwu, 2006). It is observed that the influence of ICT on education is to enhance the ability of each learner to generate access, adopt and apply knowledge and Information to solve complex problems (Ajayi, 2001).

Liverpool (2002) discussed the uses of ICT in teacher education and divides them into four forms: ICT as object, ICT as assisting tools, ICT as a medium for teaching and learning and ICT as a tool for organizing and management in schools.

- i. **Information and Communication Technology (ICT) as Object** refers to learning about ICT, mostly organized in specific courses such as “computer education. Learners familiarize themselves with hardware and software. Here what is being learned depends on the types of education and the level of students. The aim is computer literacy.
- ii. **Information and Communication Technology (ICT) as an Assisting tool:** ICT is used as a tool, for example, while carrying out assignments, collecting

data and documentation, communicating and conducting research. Typically, ICT is used independently from the subject matter.

- iii. **Information and Communication Technology (ICT) as a Medium for teaching:** IT serves as a medium through which teachers can teach and learners can learn, may be in form of drills simulation, practice tutorials, exercises and educational networks.
- iv. **Information and Communication Technology (ICT) as a tool for organization and management:** This refers to the use of Information and Communication Technology (ICT) in handling school records, like timetabling, attendance, fees collection, examination results and general communication.

Barton and Haydn (2004), maintained that the new Information and Communication Technology facilities could allow teachers and learners to move into the role of guidance and facilitator in assisting students to gain the required skills and utilize the knowledge available in various forms. Shehu (2006) highlighted the following benefits of Information and Communication Technology in the class room environment.

- i. Providing students with chances of studying, investigating and practicing complex skills, procedures and concepts in a realistic but non-risky situation. Complex skills at a realistic level can be tried by the students without risk to people, capital or other sources.
- ii. Increasing students' access to Information. Access to instruction is flexible and ensures broad viability and availability of educational opportunities. It is a cost-

effective system of instruction and learning materials can be accessed irrespective of time and space.

- iii. Adapting Instruction of the abilities and preference of the Individual students and increasing the amount of personalized (Individualized) instruction a student receives. Many students benefit from the immediate responsiveness of computer interactions and appreciate the self-paced and private learning environment.
- iv. Information and Communication Technology (ICT) helps teachers to supplement their lessons using drill and practice software and provides instruction in learning centres through tutorials or simulations software.
- v. It also helps teachers to improve upon their performance and enable them to enhance the achievement of their students. This will result in improvement of teachers' overall efficiency and saves valuable time.
- vi. Information and Communication Technology (ICT) to some extent helps to minimize the problem of teachers' scarcity in certain areas of socialization. Many teachers can make use of computer-assisted software as an aid to interact with a group or the whole class of students.

Information and Communication Technologies are one of the major contemporary factors in shaping the now global economy and producing rapid changes in the society. They have fundamentally changed the way people learn, communicate and do business (UNESCO, 2002). Considering the important role played by Information and Communication Technology, Ajagun, (2003) strongly recommended that Nigeria should do something to overhaul its educational sector or it would continue

to produce “analogue graduates” who cannot fit into the practice of modern technology.

However, in recognition of the permanent role of information and communication technology in advancing knowledge and necessary skills, it is stated in the National Policy on Education that for effective functioning, in modern world, there is an urgent need to integrate information and communicate technology into Nigeria Education System (Ajagun, 2003). In fact, it was observed by Mac-Ikemenjima (2005) that information and Communication Technologies (ICT) have become key tools that have had a revolutionary impact on educational methodology globally. However, this revolution is not widespread and needs to be strengthened to reach a large percentage of the population. Therefore, there is need for Nigeria to borrow a leaf from developed countries like the United States of America and Australia on the type of modern methods of delivery they adopt and use in the teaching and learning processes.

The Federal Government realized the need a for Information and Communication Technology and approved the National Information Technology Policy. This Policy focuses on the use of Information and Communication Technology for education, creation of wealth, poverty eradication, job creation and global competitiveness. Thus, it is important to note that the rapid growth of Information and Communication Technology in Nigeria present a number of prospects for the advancement of the Industrial sector in Nigeria by providing more effective ways of developing human resources that lubricate the machinery for industrial growth and development (NITDA, 2003)

## **2.5 Concept of Computer Assisted Instruction**

Computers are already in use in Nigeria: in banks, large firms, transport companies, the armed forces and elsewhere. Either owing to excessive compartmentalization of administrative departments or to the relative Ministry of Education was not involved at higher levels of decision making. With the growing use of computers in education and instruction, computer training for teachers and teacher-educators is being considered a prime objective for the advancement of educational technology (Nwagwu, 2006). The computer is an electronic automated machine which is capable of receiving, storing, recalling or retrieving information put into it. It is the fastest processing machine ever invented by man. According to Becta (2003), computer is useful in almost all spheres of life such as in hospitals for keeping records of patients, drugs, staff and accounts, instruments for diagnosis and treatment. It facilitates the banking system and helps in rendering quick services to clients. It is very useful to professional services such as Engineering, chartered firms and business. Thus, computer is regarded as an all-purpose machine.

Becta (2003) defined a computer as a combination of hardware devices and programs assembled to accomplish some specific tasks. Computer is a technology information process device which can be used to present instructional events that are designed, developed and produced for an individualized learning situation. Computer has been found to be the most suitable, reliable and versatile medium for individualizing instruction. It is able to deal simultaneously with large number of students on individual basis and this tends to lower the cost, in the long run.

The terminologies concerning computers as a learning medium varies widely and there are no universally agreed upon definitions. Among those frequently encountered are: (a) Computer Assisted Instruction (CAI) where computer acts as teaching new skills or concepts or providing practice for learners. Software in this mode is often referred to as drill practice and tutorial. (b) Computer Based Learning (CBL) or Computer Assisted Language Learning (CALL) which includes various categories such as simulations and modeling, instructional games, problem solving, information handling, and demonstration (Anderson, 2011).

According to Mills (2001), Computer Assisted Instruction is an interactive instructional technique whereby a computer is used to present instructional material and monitor the learning that takes place. Computer Assisted Instruction learning uses a combination of text, graphics, sound and video in the learning process. The computer has many purposes in the class room, and it can be utilized to help students in all areas of the curriculum. Computer Assisted Instruction refers to the use of computers as a tool to facilitate and improve instruction. Computer Assisted Instruction programs use tutorials, drills and practices, simulations and problem solving approaches to present topics: and they test the students' understanding. These programs let students progress at their own pace, assisting them in learning the materials (Ibidem, 2001).

Many Educational software programs follow the same design as programmed instruction. Students receive some instructional materials, followed by a probe (a small test); if they respond correctly, they move on to the next lesson; if they do not, they repeat the lesson or receive a different lesson covering the same material. This

approach is called Computer Assisted Instruction (CAI). Computer Assisted Instruction (CAI) is an interactive instructional technique whereby a computer is used to present the instructional material and monitor the learning that takes place. According to Fakomogbon, Jolayemi, Omiola, and Adebayo (2012) computer assisted instruction is any instructional materials put on the audio disc or audio-visual digital disc that can be played on any available screen. Onasanya and Adebija (2007) defined computer assisted instruction as the use of computers to provide instruction directly to students by stimulating teaching and learning situation. Computer assisted instruction represents a teaching tool that involves the use of a computer program or programs to facilitate the education of a group of students. Computer assisted instruction generally consist of drill and practice, simulation task, instructional games and tutorials; instruction can contain new material, and can be used alone or as an enhancement to traditional instructional methods (Mills, 2001).

According to Cotton (2001) computer assisted instruction refers to instruction or remediation presented on a computer, as a tool to facilitate and improve instruction and tests the students' understanding. It uses a combination of text, graphics, sounds and videos in enhancing the learning process. Seo and Bryant (2009) defined computer assisted instruction as the use of a computer to provide instructional content. According to Graham (2005) computer assisted instruction allows interaction between user and computer with immediate feedback.

## **Concept of Students' Performance**

There are diverse definition by different scholars and educationists. Students' performance may be defined as the outcome of teaching and learning it is the extent to which a student, teacher or institution has achieved their educational goals. Students performance is commonly measured by examinations or continuous assessment but there is no general agreement on how it is best tested or which aspects are most important. It includes procedural knowledge such as skills or declarative knowledge such as facts (cognitive domain) (Kanter, 2012).

In similar a vein; Bell (2012) defined students' performance as the ways or strategies students use to deal with their studies and how they cope with or accomplish different tasks given to them by their teachers. Students' performance is the ability to study and remember facts and be able to communicate knowledge verbally or on paper in educational institutions. Success is measured by students' performance, or how well a student meets standards sets out by the institution.

### **2.6 Computer Assisted Instruction and Students' Performance**

The potential benefits of computer assisted instruction (CAI) cannot be underestimated in the contemporary world; there is a plethora of established findings on the instructional value of computer, particularly in advanced countries. There are now several Computer Assisted Instructional packages on different subjects. It is obvious that the current trend in research, all over the world is the use of computer facilities and resources to enhance students' learning. This may be the reason why Handelsman, Ebert-may, Beichner, Bruns and Chang (2004) opined that "many

exercises that depart from traditional method are now readily accessible on the web even though teachers do not use these facilities. They further showed that the interactive approaches to lecturing significantly enhance learning. Cotton (2001) says the use of Computer Assisted Instruction as a supplement on conventional instruction produces higher achievement than the use of conventional instruction alone, research is inconclusive regarding the comparative effectiveness of conventional instruction alone and Computer Assisted Instruction alone, and that computer- based education (CAI and other computer applications) produce higher achievement than conventional instruction alone.

Students learn instructional contents faster with Computer Assisted Instruction than with conventional instruction alone, they retain what they have learned better with Computer Assisted Instruction than with conventional instruction alone and Computer Assisted Instruction activities appear to be at least, as cost effective as other instructional methods such as teacher-directed instruction and tutoring. Furthermore, computer assisted instruction has been found to enhance students' performance than the conventional instructional method in reading (Kerper, Robinson & Casado-kehoe, 2000). However, findings by Mills (2001) revealed that Computer Assisted Instruction was found to be as effective as classroom based learning but not as effective for topics requiring critical thinking or mathematical problem solving. In addition the time required by learners to use Computer Assisted Instruction was higher overall than conventional classroom instruction. Students taught using traditional instruction combined with the use of computer perform significantly better than students taught using traditional instruction (Akour, 2006).

Advocates of computer assisted instruction (Chang, 2002; Cotton, 2001; Garcia & Arias, 2000) claimed that using Computer Assisted Instruction enhances learning through the overall positive motivational factors associated with technology integration into the curriculum and improves performance through increased motivation. Chien-hsun, (2006) claimed in their extensive research reviews that Computer Assisted Instruction boosts positive attitude and performance of students towards learning. Similarly, in a meta- analysis of 500 studies, Akour (2006) found that Computer Assisted Instruction increased the positive attitude of students towards learning, which resulted in increased performance.

## **2.7 Theoretical Framework**

There are many learning theories propounded to help teachers deliver their lessons effectively to bring about positive learning outcomes in students. Notable among them are: The bottom up approach, the top down approach, Anderson's schema theoretical model of reading which emphasizes the importance of background knowledge to teach comprehension as well as Edward L. Thorndike's theory of connectivism which results in transfer of learning and motivation.

### **2.7.1 The Bottom up Approach**

According to the bottom up approach, meaning resides in the graphic symbols. Olaofe and Masembe (2006) explained it as an approach that sees reading as a process which involves sensing print on the retina, analyzing letter features and letter clusters, detecting and combining letters into words, organizing words into phrases and sentences, associating meaning with the sentences, and storing and reasoning with the meaning. This approach therefore involves a reader into

manufacturing and at the same time processing meaning from the smallest particles of the graphic representation to the highest information of the paragraphs. It is also clear that in this kind of approach, meaning can only be seen within the constructed words, phrases and sentences.

### **2.7.2. The Top Down Approach**

However, the top down approach is an approach which indicated that the reader of a text can easily make meaning of what he/she reads through his/her mind. Thus, according to Olaofe and Masembe (2006) the basis of top- down model is that readers use their knowledge and experience in order to make prediction/ hypothesis about the meaning of the text. The advocates of this approach believed that meaning of a read text can easily be brought rather than got from the graphic symbols represented by the writer.

However, Olaofe and Masembe (2006) described the top- down approach of reading comprehension as that which does not cater for a situation in which a reader (school reader) is confronted with expository text about which his or her mind has very limited knowledge and therefore cannot formulate adequate hypotheses. Moreover, Stanovich (1980) also criticized the two approaches explained that Bottom- Up approach/ model does not allow for higher level processing stages to influence lower level processing. And Top- down approach / model does not account for the situation in which a reader has little knowledge of a text topic, and therefore cannot form prediction.

However, Olaofe and Masembe(2006:17) advocated for what they called

Interactive compensatory approach. In this approach, there is interaction between the written text and the reader in which the reader's knowledge of synthetic, pragmatic, semantic, lexical and graphical information must simultaneously combine with each other if understanding is to take place.

Their proposal showed that the interactive approach is cyclical while the other two approaches discussed are serial. The Top-Down Approach emphasizes sequential processing, while, in the Bottom Up Approach, reading is seen to involve simultaneous and parallel sources of information.

### **2.7.3 Anderson's Schema-Theoretical Model of Reading**

Anderson (2011) analysed a type of interactive model of reading namely; a schema-theoretical model. It describes in detail how the background knowledge of the learner interacts with the reading task and illustrates how student's knowledge and previous experience with the words is crucial to deciphering a text. The ability to use the schema, or background knowledge, plays a fundamental role in one's trial to comprehend a text, schema theory based on the notion that past experiences lead to the creation of mental frameworks that help a reader makes sense of new experiences. Smith (2002:14) calls schema, the "extensive representation of more general patterns regularities that occur in our experiences". For instance, one generic schema of an airplane will allow him to make sense of airplane he has not previously flies with. This means that past experiences will be related to new experiences, which may include the knowledge of objects, situations, events as well as knowledge of procedures for retrieving, organizing and interpreting information. Anderson

(2011) presented research showing that recall of information in text is affected by the reader's schema and explains that a reader comprehends a message when he is able to bring to mind a schema that gives account of the objects and events described in the message. For Anderson comprehension is the interaction between old and new information. Anderson emphasizes: "To say that one has comprehended a text is to say that one has found a mental home for the information in the text or that one has modified an existing mental home in order to accommodate the new information".

Therefore, the learner's schemata will restructure it to accommodate new information as that information is added to the system or knowledge in store. This is the combination of the old and new information that guarantees comprehension. This theory is highly related to this study because reading is all about comprehension. More so, experience in what a child already knows is very important in achieving comprehension.

#### **2.7.4 Edward Thorndike's Theory of Connectivism**

Thorndike's theory in Maduabum (2004) has to do with stimulus and responses. It involves three laws: Laws of readiness, exercise and effect. The law of readiness states that the learner's background knowledge plays a great role in learning. This means that there must be previous knowledge at the background to help the learner face the level of learning he/she is attempting. The implication is that the learner must be prepared for learning. The law of exercise states that there must be practice before any meaningful learning takes place. On the other hand, the law of effect states that anything done that guarantees any positive or desired effect becomes associated with the situation it was carried out.

A hungry cat was enclosed in a box with a dish of food placed outside the box. The cat made desperate efforts to get the food but could not until it accidentally pulled the string attached to the box. The box opened and the cat found its way out and consumed the food. The whole process was repeated by Thorndike and the cat made several efforts and once again pulled the string accidentally and went out to get the food. This theory is a clear evidence that learning does not only involve constant practice but is encouraged by positive effects. In this study the researcher adopted Edward Thorndike's theory of learning because it encourages exercise and constant practice. Reading involves mental exercise and constant practice, and constant practice in reading would lead to reading comprehension which would subsequently lead to greater achievement in comprehension. Furthermore, this theory was useful to this study because it upholds that the learner's background plays a paramount role in learning. This is in line with the schema- analytical theory discussed above. Reading comprehension requires the learner's knowledge in the store to be able to achieve maximum understanding.

More so, Thorndike's theory was adopted for this study because it would aid transfer of learning. According to Azikiwe (2007) for learning to be seen to have taken place, the child should be able to use the knowledge, skills and information required to solve related problems. A child who has interest in reading and is constantly reading is likely to at a point, begin to understand even what was incomprehensible before and then begin to perform well academically as well as use what was learnt through reading to solve other academic and life problems.

Equally, Thorndike's theory encourages motivation. Azikiwe (2007) supported this theory by stating that motivation is another aspect of psychology of learning that guides the learner to achieve the desired change in behavior. This researcher defines motivation as the arousal of the tendency to act or behave towards a goal which is selected in preference to all other possible goals. Edem (2005) stated that the concepts related to motivation include interest, need, attitude, and aspiration which are highly related to this study.

## **2.8 Review of Empirical Related Studies**

Caleb (2003) investigated the effect of Computer Assisted Instruction on Students Performance in English Language Reading Comprehension in Senior Secondary School Students in Kenya. The research design was quasi experimental design, the sample of the study comprised of 193 students (105 males and 88 females). The instrument for data collection was Computer Assisted Reading Performance Test (CRPT) with reliability index of 0.85. Mean and standard deviation and analysis of covariance (ANCOVA) was used for data analyses. The findings showed that there was a significant improvement in the performance of students who were taught using the Computer Assisted Instruction than those taught using the conventional method. The findings recommend among others that Computer Assisted Instruction should be used in the teaching and learning process.

Relationship exists between that study and the present study because both studies used the computer for instruction, both used the quasi experimental design and the subject were both in English Language Reading Comprehension. Differences exist in that this present study was conducted in Minna Niger State Nigeria while that study

was conducted in Kenya, and the students used in that study were those of Senior Secondary School while the present study used Junior Secondary School Students.

Okereke (2005) examined the impact of the electronic calculator on cognitive achievement and overall development of the Nigerian learners' mathematic ability in speeded and difficult arithmetic problem. The study was quasi-experimental design and methodology adopted was a pre-test post-test with reliability index of 0.83. The research constituted two equivalent groups; the control and the experimental groups. The experimental group was taught with electronic calculator while the control group was taught without calculators using the conventional 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 group respectively. The result concluded that the group taught mathematics with electronic calculator performed significantly better than the group taught mathematics without the calculator.

That study is related to the present study in that the calculator used is a computer product, they were carried out to know one or more technological method or strategies on academic achievement of students in a subject.

Ethel (2009) investigated the effect of CAI on students' performance in reading comprehension of Junior Secondary School students in Dutse, Jigawa State. The design of the study was quasi experimental design. The population of the study was all the Junior Secondary School (JSS11) in public Junior Secondary School in Enugu State and the population stood at 5,350 from the population 8 coeducational

JSS with a population of 117 (44 females and 73 males) were purposively sampled for the study. Data collection was one using Reading Performance Test (REPT) with reliability index of 0.82. The data collected were analyzed using mean and standard deviation, t- test and ANOVA. The findings of the study showed that the experimental group taught using Computer Assisted Instruction performed better than the control group taught using the conventional method. The findings recommend that computer assisted instructional packages should be used in teaching and learning of reading comprehension in junior secondary schools.

That study is related to the present study in that both studies were carried out to know the performance of students in reading comprehension, Computer Assisted Instruction was used to carry out the instruction for the experimental group and the conventional method was used to teach the control group and the subject area for both studies was the English Language. Differences exist between both studies in that the above study was conducted in Enugu State while this present study was conducted in Minna Niger State.

Olibie (2010) investigated the use of Computer Assisted Language Learning to improve students' English Language achievement in Universal Basic Education. The research was a quasi-experiment. The sample of the study comprised of 160 students. The instrument used for data collection was Grammar Proficiency Test (GPT) with reliability index of 0.86. The students' scores were analyzed using mean and standard deviation. The findings showed that Computer Assisted Language Learning enhanced students' ability to produce grammatical sentences, to accurately transform the order of constituents in grammatical units.

Relationship exist between the two studies, the effect of Computer Assisted Instruction as dependent instruction was used in both studies and in English Language but differences exist in the contents the above study tested Grammar while this study tested reading comprehension. The study above was in Asaba Delta State while this study was conducted in Minna Niger State.

Yusuf and Afolabi (2010) investigated the effect of computer assisted instruction on secondary school students' performance in biology. Also, the influence of gender on the performance of students exposed to computer assisted instruction in individualized or cooperative learning settings was examined. The research was a quasi-experimental involving a 3-2 factorial design. The sample of the study comprised 120 first year senior secondary school students (SSS1) sampled from three private secondary schools in Oyo State, Nigeria. The students' pre test and post test scores were subjected to analysis of covariance (ANCOVA) with reliability index at 0.81. The findings of the study showed that the performance of students exposed to computer assisted instruction either individually or cooperatively were better than their counterparts exposed to conventional classroom instruction. However, no significant difference existed in the performance of male and female students exposed to computer assisted instruction in either individual or cooperative settings.

That study is related to the present study in that the Computer Assisted Instruction used for teaching experimental group during the experiment was computer dependent instruction like computer as a tutor and drill. But differences exist in the contents of the two studies, one is in biology and the other in reading comprehension

and also the study is in different location this study was conducted in Oyo State while this present study was conducted in Minna Niger State.

Chibuzo (2012) investigated the Impact of Computer Assisted Instruction on the Academic Performance of Students in Social Studies in Enugu State, Nigeria. The design of the study was quasi experimental design. The population of the study was all the Junior Secondary School (JSS1) Students in public JSS in Enugu State and the population stood at 6,353, from the population 8 co-educational Junior Secondary Schools with a population of 1,482 (806 females and 676 males) were purposively sampled for the study. Data collection was done using Social Studies Achievement Test (SSAT). The reliability index of 0.73. The data collected were analyzed using mean and standard deviation, T-test and ANOVA. The findings of the study were that students taught with Computer Assisted Instruction performed better than those taught using conventional method, and that both males and females taught Social Studies with Computer Assisted Instruction performed well equally.

That study is related to this present study in that Computer Assisted Instruction was used for teaching the experimental group during the experiment. The design used was quasi experimental design, both studies were carried out to know the performance of students in a subject. Differences exist in both studies in content areas and the locations.

Abdullahi (2014) investigated the effect of Computer Assisted Instruction on performance of Senior Secondary School Students in Basic Technology. The study adopted a quasi-experimental pre-test, post-test, control group design. The population of the study consisted of 170 (55 females and 115 males) students. The

instrument for data collection was Basic Technology Performance Test (BATPET) with reliability index of 0.76. Independent t-test statistical analysis of mean and standard deviation was used to analyse data obtained. The findings indicated that the use of technology without satisfying the conditions of learning such as factual information, learners cognitive skills and intellectual ability especially ability to read, write and understand does not improve learning.

That study is related to the present study in that both studies were carried out to know the performance of students in a subject, both studies used the Computer Assisted Instruction as the medium of instruction. Differences exist in subject area which is Basic Technology for that study and Reading Comprehension for this present study. That study was conducted in Sokoto State while the present study was conducted in Minna Niger State.

Emmanuel and Joel (2014) investigated an Examination of Facilitative Effect of Computer Assisted Instruction on Students' Achievement in Chemistry Reaction and Equilibrium. The research was a quasi-experiment. The sample of the study comprised 240 students (128 male and 112 female students). The instrument used for data collection was Chemistry Reaction and Equilibrium Achievement Test (CREAT) with reliability index at 0.88. The students' scores from the CREAT were analyzed using mean and standard deviation to answer the research questions and ANOVA was used to analyze data for testing the hypotheses. The findings showed that there was a significant difference between the mean achievement of students taught Chemical Reaction and Equilibrium using Computer Assisted Instruction and those taught same using conventional strategy.

That study is related to the present study in that CAI as an independent variable in that study is still part of computer dependent instruction just like tutorial and drill. Differences exist in both studies in content area and location that study was in chemistry while the present study was in reading comprehension.

## **2.9 Summary of review and uniqueness of the study**

Various empirical studies reviewed so far in this present study revealed that the use of Computer Assisted Instruction in the teaching and learning of school subjects can aid in understanding, achievement and performance of the learners. All the reviews found out that Computer Assisted Instruction has significant effect on students' performance with the exception of Abdullahi (2014) whose study investigated the effect of Computer Assisted Instruction on performance of Senior Secondary School Students in Basic Technology and the result showed that there was no significant difference in the performance of students taught using Computer Assisted Instruction and those taught using the Traditional Method. This was attributed to students' lack of satisfying other conditions for learning such as the learners intellectual skills which include the ability to read, comprehend and respond to questions relevant to the contents. Therefore, it is not out of place that this present study tested the effect of Computer Assisted Instruction on the performance in reading comprehension in Junior Secondary School Students in Minna Niger State.

This present study is unique from the empirical studies reviewed in that the time in which this present study was conducted differed from those of the empirical study. This study was conducted in 2016 while the others were conducted in 2003, 2005, 2009, 2010, and 2014 respectively. The subjects of study of the present

research also differed from those of the empirical studies, others were on subjects like social studies, chemistry, biology, mathematics, basic technology while the present study was on English Language. The content area of this present study which covers word meaning, Identification of Main Ideas, Comparing and Contrasting of Ideas and Summarization differs from those of the empirical studies reviewed in that the others conducted their studies in content areas of Reaction and equilibrium, Speeded and Arithmetic problem and those whose subject of study were English Language their contents were different from this present study. Also, the location of the various empirical studies reviewed were Sokoto State, Enugu State, Oyo, Asaba Delta State and Kenya while the present study was conducted in Minna Niger State.

## **CHAPTER THREE**

### **METHODOLOGY**

#### **3.0 Introduction**

This chapter presents the research method used in the study. It discusses the research design, the population of the study, sampling procedure and sample size, research instrument, validity and reliability of the instrument, experimental treatment, administration of the instrument, and the method used in data presentation and analysis respectively.

#### **3.1 Research Design**

The research method for this study was quasi-experimental non equivalent non control group design. Quasi-experimental design was chosen because it involves selection of groups, upon which variables were tested without any random pre-selection process. The design measured the effects of Computer Assisted Instruction (treatment or independent variable) and conventional method on the performance of Junior Secondary Schools Students in reading comprehension (criterion or dependent variable). This type of design required that students were tested with the same instrument(s) before and after treatment. Two (2) intact classes from two (2) different schools were used in the study. One experimental and one control group from each of the junior secondary schools in the study area. The design is structurally represented below:

<b>N</b>	<b>O<sub>1</sub></b>	<b>x</b>	<b>O<sub>2</sub> (E)</b>
<b>N</b>	<b>O<sub>3</sub></b>	<b>-</b>	<b>O<sub>4</sub> (C)</b>

From the diagram above, **N** stands for non-randomized sample size of the subject selected for the study, **O<sub>1</sub>** and **O<sub>3</sub>** are pre-test measurements of the experimental and the control groups respectively, **O<sub>2</sub>** and **O<sub>4</sub>** are post-test measurement of the experimental and the control groups respectively, and **X** is treatment employed in the course of the study (CAI). The independent variable was the method of teaching Reading Comprehension skills that is, the traditional classroom instructional methodology, and the Computer Assisted Instruction (CAI) Reading Comprehension skills instructional methodology. The dependent variable was the scores of the students on the Reading Comprehension Performance Test (RCPT).

### **3.2 Population of the Study**

The target population for this study consisted of all Junior Secondary School Students 1(JSS 1) in public junior secondary schools in Minna Niger State. The total population stood at 15,451 as at 2015/2016 academic session (Research and Statistics Department Ministry of Education. The population was a mixed one in the urban area made up of 5,350 females and 10,101 males with age range from 11-13 the dominant language being Gwari and Hausa and learning English as second language.

### **3.3 Samples and Sampling Techniques**

The sample size for this study was 211 which comprised 99 females and 112 males purposive sampling technique was used to select two schools out of the 12 junior secondary schools. Purposive sampling was used so as to select schools that have equivalence in facilities and manpower, well equipped and functional computer

laboratories and exposure level of both the teachers and students to the use of computers. Two schools were sampled for the study based on the above characteristics. Out of the two schools, two intact classes were sampled for the study. School A was assigned the Experimental group and was treated using Computer Assisted Instruction (CAI) while school B was assigned control group and was treated using the Traditional method of teacher (TM). The students in each of the two intact classes constituted the sample (211 students) used for the study.

**Table 1: Sampling Distribution of the Students under Study**

School	Males	Females	Total
A	52	49	101
B	60	50	110
TOTAL	112	99	211

### 3.4. Instrument for Data Collection

The instrument used for data collection in this study was researcher adapted Reading Comprehension Performance Test (RCPT).” This instrument was developed by the researcher. It was eighty questions multiple choice instruments with options A-D from which the students chose the correct alternatives. It is divided into four (4) different sections (A-D) and each section tests one sub-variable under study- word meaning, identification of main idea of the passage, comparison and contrasting and summarization. One (1) mark was awarded for any correct option while zero (0) mark was awarded for any wrong option. The topics used in the study were adapted from the JSS 1 syllabus.

### **3.4.1 Validity of the Instrument**

The Reading Comprehension Performance Test was Face, Construct and Content validated by experts of the Educational Technology in the Faculty of Education, Language Educationists of the faculty of Education and the supervisors of the study to determine the appropriateness of the package, clarity, simplicity, and suitability of the package for the study sample. Yet, they suggested some modifications and noticed some errors which the researcher had to correct. Finally, they indicated that the package appeared to be a valid measure of the level of students' understanding in Reading Comprehension passages. The test items are presented in Appendix A.

### **3.4.2 Reliability of the Instrument**

The reliability of the instrument used in this study was obtained from the pilot test conducted in some schools outside the study samples. The reliability index was obtained through the test-retest method. The test was administered to thirty (30) students of JSS Kodo. The Pearson Product Moment Correlation Coefficient was used to obtain the reliability of the instrument. The reliability index obtained after the interval of two weeks was (r) 0.95. This means that there was statistically significant positive correlation between the samples' scores on both the test and retest of the instrument. Therefore, the instrument was reliable enough to measure JSS English language reading comprehension performance.

### **3.5 Administration of the Instrument**

Two instructional approaches were used for the study. The use of Computer Assisted instructional package in teaching the experimental group and the use of

conventional classroom approach was used in teaching the control group. The lesson plan used for both the experimental and control groups were the same in terms of content taught. The difference between the two groups was that the experimental group was taught using the computer as tutor with the supervision of the researcher the computer presented instructions interactively with one student at a time only in an individualized sequence, and then proceeded at their own pace.

Sets of questions were given to the students after each sequence of instruction and each student was expected to answer the questions without any teacher or peer interaction while the control group was taught using the traditional/conventional method with the teacher as their instructor (Research Assistant). A research assistant (who also was their original class teacher) was used to assist in carrying out the task of teaching the control group. The researcher briefed the research assistant prior to the commencement of the research on what is expected of him before, during and after the test

The pretest was administered to both the experimental and control groups before the commencement of the treatment. After the pre-test the experimental group were taught how to use the package treatment started, the researcher handled the experimental group while the research assistant handled the control group. The experiment was done during the normal school hours using the school time-table for classes. The duration for the experiment was eight weeks. At the end of the experiment, posttest was administered to the two groups pre-test and the post test were the same for both groups but the posttest questions were rearranged. The data

collected from the pre-test and the post-test were used in answering the research questions and also testing the null hypotheses for the study.

### **3.6 Method of Data Analysis**

The researcher used Statistical Package for Social Science (SPSS) version 2.0 to analyze the data. Descriptive statistics in which mean and standard deviation were used to indicate the mean frequency of the students' performances (scores) in order to answer the research questions while the analysis of covariance (ANCOVA) was 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 technique adopted for analyzing the hypotheses was ANCOVA which helped to remove initial group differences (Non- equivalence) and also helped to compare the mean of the two groups

## CHAPTER FOUR

### DATA PRESENTATION AND ANALYSES

#### 4.0 Introduction

This study investigated the effects of Computer Assisted Instruction on the performance of Junior Secondary Schools Students in Reading Comprehension skills in Minna Niger State. The experiment lasted eight (8) weeks. The pre-test post-test design quasi-experimental research design was used to generate data and answer research questions and test null hypotheses. This chapter presents and analyses the data collected to answer the research questions and test null hypotheses.

#### 4.1 Data Presentation and Analyses

This section presents the data collected and analyzed. The data were analyzed through descriptive and inferential statistics to answer research questions and test null hypotheses at 0.05 level of significant.

#### 4.2 Null Hypotheses

This section presents the analyses of data collected to test null hypotheses earlier formulated. All the hypotheses were tested at 0.05 level of significant.

**4.2.1 Null Hypothesis One (Ho1):** There is no significant difference between the mean scores of experimental and control groups in identifying Word Meaning.

This hypothesis was tested by subjecting the post-test mean scores of the experimental (CAI) and control groups on Word Meaning to the t-test analysis as presented in Table 2 and 3:

**Table 2: Summary of the test Analysis of the Pretest Academic Performance of Experimental and Control Groups on Word Meaning.**

Groups	N	MEAN	SD	Df	Tcal	P-value
CAI (Experimental)	101	7.81	4.41			
				209	0.76	1.96
CONV. (Control)	110	9.20	3.42			

$\alpha = 0.05$

Table 2 indicates the pretest the academic performance of students on Word Meaning, the t-calculated is (0.76), the p-value is (1.96),  $\alpha$  is (0.05). This shows that  $p > \alpha$ . This indicates that the experimental and control groups of students were homogenous before receiving treatment.

**Table 3: Summary of the T-test Analysis of the Post-test Academic Performance of Experimental and Control Groups on Word Meaning.**

Groups	N	MEAN	SD	Df	Tcal	P-value	Decision
CAI (Experimental)	101	26.6	6.7				H <sub>0</sub> rejected
				209	15.69	0.000	
CONV. (Control)	110	14.59	3.84				

$\alpha = 0.05$

Table 3 indicates the posttest performance of students on Word Meaning, the t-calculated is (15.69), the p-value (0.000) is less than  $\alpha$  (0.05). Therefore, the null hypothesis was rejected and the alternative hypothesis was accepted. It can be concluded that there was significant difference in the performance of students in Word Meaning between students who received instruction via Computer Assisted Instruction and those who received the same instruction via conventional method in favour of the former. This shows that Computer Assisted Instruction has a significant effect on the performance of students in Word Meaning.

**4.2.2 Null Hypothesis Two (Ho2):** There is no significant difference between the mean scores of experimental and control groups in Identification of Main Idea.

This hypothesis was tested by subjecting the post-test mean scores of experimental (CAI) and control groups on Identification of Main Idea to the T test analysis as presented in Table 4 and 5:

**Table 4: Summary of the T-test Analysis of the Pretest Academic Performance of Experimental and Control Groups on Identification of Main Idea.**

Groups	N	MEAN	SD	Df	Tcal	P-value
CAI (Experimental)	101	6.60	2.28			
				209	2.40	1.64
CONV. (Control)	110	7.69	3.17			

$\alpha = 0.05$

Table 4 indicates the pretest academic performance of students on Identification of Main Idea, the t-calculated is (2.40), the p-value is (1.64),  $\alpha$  is (0.05). This shows that  $p > \alpha$ . This indicates that the experimental and control groups of students were homogenous before receiving treatment.

**Table 5: Summary of the T-test Analysis of the Post-test Performance of Experimental and Control Groups on Identification of Main Idea.**

Groups	N	MEAN	SD	Df	Tcal	P-value	Decision
CAI (Experimental)	101	27.86	4.54				H0 <sub>2</sub> rejected
				209	16.43	0.000	
CONV. (Control)	110	17.69	4.45				

$\alpha = 0.05$

Table 5 indicates that in the post-test performance of students on Identification of Main Idea, the t-calculated is (16.43) the p-value (0.000) is less than  $\alpha$  (0.05). Therefore, the null hypothesis was rejected and the alternative hypothesis was

accepted. It can be concluded that there was significant difference in the performance of students in Identification of Main Idea between students who received instruction via Computer Assisted Instruction and those who received the same instruction via conventional method in favour of the former. This shows that Computer Assisted Instruction has a significant effect on the performance of students in Identification of Main Idea.

**4.2.3 Null Hypothesis Three (Ho3):** There is no significant difference between the mean scores of experimental and control groups in Comparing and Contrasting of ideas.

This hypothesis was tested by subjecting the post-test mean scores of experimental (CAI) and control groups on Comparing and Contrasting of Ideas to the t-test analysis as presented in Table 6 and 7:

**Table 6: Summary of the T-test Analysis of the Pretest Academic Performance of Experimental and Control Groups on Comparing and Contrasting of ideas.**

Groups	N	MEAN	SD	Df	Tcal	P-value
CAI (Experimental)	101	9.47	3.56			
				209	4.06	1.04
CONV. (Control)	110	8.52	4.58			

$\alpha = 0.05$

Table 6 indicates the pretest the academic performance of students on Comparing and Contrasting of Ideas, the t-calculated is (4.06), the p-value is (1.04),  $\alpha$  is (0.05). This shows that  $p > \alpha$ . This indicates that the experimental and control groups of students were homogenous before receiving treatment.

**Table 7: Summary of the T-test Analysis of the Post-test Academic Performance of Experimental and Control Group on Comparing and Contrasting of Ideas.**

Groups	N	MEAN	SD	Df	Tcal	P-value	Decision
CAI (Experimental)	101	28.66	5.77	209	12.40	0.000	H <sub>03</sub> rejected
CONV. (Control)	110	17.05	7.61				

$\alpha = 0.05$

Table 7 indicates the post-test performance of students on Comparing and Contrasting and Contrasting of Ideas, the t-calculated is (12.40), the p-value (0.000) is less than  $\alpha$  (0.05). Therefore, the null hypothesis was rejected and the alternative hypothesis was accepted. It can be concluded that there is significant difference in the performance of students in Comparing and Contrasting of Ideas between students who received instruction via Computer Assisted Instruction and those who received the same instruction via conventional method in favour of the former. This shows that Computer Assisted Instruction has a significant effect on the performance of students in Comparing and Contrasting of Ideas.

**4.2.4 Null Hypothesis Four (Ho4):** There is no significant difference between the mean scores of experimental and control groups in Summarization.

This hypothesis was tested by subjecting the post-test mean scores of experimental (CAI) and control groups on Summarization to the t-test analysis as presented in Table 8 and 9:

**Table 8: Summary of the T-test Analysis of the Pretest Academic Performance of Experimental and Control Groups on Summarization.**

Groups	N	MEAN	SD	Df	Tcal	P-value
CAI (Experimental)	101	6.91	3.27			
				209	2.02	0.88
CONV. (Control)	110	6.66	3.42			

$\alpha = 0.05$

Table 8 indicates the pretest the academic performance of students' on Summarization, the t-calculated is (2.02), the p-value is 0.88 and is 0.05. This indicates that  $p > \alpha$ . It shows that the experimental and control groups of students were homogenous before receiving treatment.

**Table 9: Summary of the T-test Analysis of the Post-test Academic Performance of Experimental and Control Groups on Summarization.**

Groups	N	MEAN	SD	Df	Tcal	P-value	Decision
CAI (Experimental)	101	28.15	6.76				H <sub>0</sub> rejected
				209	18.67	0.000	
CONV. (Control)	110	13.53	4.48				

$\alpha = 0.05$

Table 9 indicates that in the post-test performance of students on Summarization, the t-calculated is (18.67) the p-value (0.000) is less than  $\alpha$  (0.05). Therefore, the null hypothesis was rejected and the alternative hypothesis was accepted. It can be concluded that there is significant difference in the performance of students in Summarization between students who received instruction via Computer Assisted Instruction and those who received the same instruction via conventional method in favour of the former. This shows that Computer Assisted Instruction has a significant effect on the performance of students in Summarization.

### **4.3 Summary of Major Findings**

Based on the data collected, analyzed and interpreted, the major findings were summarized as follows:

1. Experimental (CAI) group performed better in identifying Word Meaning than the control (conventional) group. It is found that the experimental group improved in their contextual word meaning as they used context clues to find the meaning of some words in the Comprehension passages.
2. Experimental (CAI) group developed more skills in Identification of Main Ideas. They improved in the realization of the themes of the Comprehension passages which pilot the main idea.
3. Experimental (CAI) students were equipped with the knowledge of Comparing and Contrasting of ideas in Reading Comprehension passages. They improved in the performance of finding the similarities and differences between related referents.
4. Experimental (CAI) group gained the ability to Summarize Reading Comprehension passages as a result of the intervention of Computer Assisted Instruction. They improved in their ability to understand logical connectives which connect one idea to the others for easy Summarization.

### **4.4 Discussion of Findings**

The result in Table 2 which answered research question 1 showed that the experimental group who were taught word meaning using Computer Assisted Instruction (CAI) performed better than those in the control group. Therefore, Computer Assisted Instruction is effective in improving the performance of students

in word meaning. Kerper, Robinson & Casado-Kehoe (2000) maintained that Computer Assisted Instruction has been found to enhance students' performance than the conventional instructional method in reading. Also, Akour (2006) showed that students taught using traditional instruction combined with the use of Computer performed significantly better than students taught using traditional instruction alone.

The result in Table 3 which answered research question 2 showed that the experimental group which were taught Identification of Main Ideas using Computer Assisted Instruction performed better than the control group taught the same topic using traditional method. This is further confirmed by the result in Table 7 (Hypotheses 2) which revealed that the difference in performance of the experimental and control groups was found to be significantly different. The result indicated that treatment using Computer Assisted Instruction produced significant difference on students' performance in identification of main ideas in English Language reading comprehension. This result is in accordance with Garcia & Arias (2000) whose research revealed that using Computer Assisted Instruction enhances learning through the overall positive motivational factors associated with Technology Integration into Classroom Instruction to improve and increase performance in the teaching and learning processes.

The result in Table 4 answered research question 3 which showed that the experimental group taught Comparing and Contrasting of Ideas using Computer Assisted Instruction (CAI) performed better than the control group which were taught the same topic using traditional method. This is further confirmed by the result in Table 8 (Hypotheses 3) which revealed that the difference in performance of

experimental and control group was found to be significantly different. The result indicated that treatment using Computer Assisted Instruction produce significant difference on students' performance in Comparing and Contrasting of Ideas. This result agreed with Kalindi (2005) whose work indicated that Computer Assisted Instruction increased the positive performance of students towards learning, which resulted in increased performance.

The result in Table 5 which answered research question 4 showed that the experimental group taught Summarization using Computer Assisted Instruction performed better than those in the control group who were taught the same topic using the traditional method. This is further confirmed by the result in Table 8 (Hypotheses 4) revealed that there was a significant difference in the performance of the experimental group and control group. The result indicated that treatment using Computer Assisted Instruction produced a significant difference in students' performance in Summarization. This agreed with Yusuf & Afolabi (2010) which stated that the performance of students exposed to Computer Assisted Instruction either individually or cooperatively performed better than their counterparts exposed to the Conventional Classroom Instruction.

## **CHAPTER FIVE**

### **SUMMARY, CONCLUSION AND RECOMMENDATIONS**

#### **5.0 Introduction**

This chapter presents the summary of the research and its findings on the Effect of Computer Assisted Instruction on Students' Performance in Reading Comprehension in Junior Secondary Schools in Minna Niger State. It also gives recommendations on the conclusion found in the study.

#### **5.1 Summary of the Study**

This study aimed at investigating the Effect of Computer Assisted Instruction on Students' Performance in Reading Comprehension in Junior Secondary School in Minna Niger State. Chapter one comprises the background of the study, statement of the problem, Research Objectives, Research Questions and Research Hypotheses, Significance of the study, Scope and Delimitation of the study.

Chapter Two reviews related literature carried out to provide the practical basis for data interpretation and result of findings on the study. The literature was reviewed under the following Sub – Headings. Conceptual Framework, which constitute concept of Reading Comprehension, Importance of Reading Comprehension, Strategies for Reading Comprehension, Importance of Reading, Impediments to Reading Comprehension, Comprehension levels, Determinants of Students' Performance in Reading, Concept of Vocabulary Development, Importance of Vocabulary Development in Reading Comprehension, Essential Components of Vocabulary Development, Importance of Instructional Media in

Education, Information and Communication Technology and Education, Concept of Computer Assisted Instruction, Computer Assisted Instruction and Students' performance, Theoretical Framework, Review of Empirical Related Studies and lastly the Summary of the Review and Uniqueness of the Study.

Chapter Three also contains the research design quasi experimental design was used for the study. Population of the study was made up of all the Junior Secondary Schools in Minna Niger State. Out of the entire fifteen thousand four hundred and fifty one (15,451) students were sampled for the study. Research Instrument was Reading Comprehension performance test (RCPT). Validity of the Instrument was determined by experts in the Faculty of Education and supervisors of the study to determine the appropriateness of the package. Administration of the instruments was through pre-test and post-test and the researcher used statistical package for Social Studies (SPSS) version 2.0 for data analysis.

Chapter Four contains Presentation of data. The data collected for the study was analyzed using descriptive and inferential statistics. The descriptive statistics was used to answer research questions and inferential statistics was used to test null hypotheses. Summary and Discussion of major Findings was based on the data collected, analyzed and interpreted.

## **5.2 Conclusions**

The 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 performance in school

subjects has necessitated the use of computer in teaching. This study has found that Computer Assisted Instruction has significant effect on the students' academic performance in English Language Reading Comprehension. The Computer Assisted Instruction appeared to be outstandingly more effective than the traditional method. Moreover, Computer Assisted Instruction 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.

### **5.3 Recommendations**

The following recommendations are made based on the findings of this study:

1. Since the experimental group taught word meaning using Computer Assisted Instruction performed better than the control group, the findings recommend that Computer Assisted Instruction should be used by teachers in teaching and learning.
2. The experimental group performed better than the control group in identification of main idea. In the light of this therefore, the findings recommend that all Secondary Schools should ensure that Computer Assisted Instruction is used in the teaching and learning processes.
3. The experimental group performed better than the control group in Comparing and Contrasting of ideas as a result of this it is recommended that Curriculum planners should incorporate Computer Studies in all School Curriculum so as to equip the learners to be computer literate with the knowledge and skills needed for the use of Computer.

4. The experimental group performed better than the control group in Summarization and the result of the finding recommends that the principals and Heads of schools should ensure that they equip their schools with functional Computer Laboratories for effective use by the teachers and learners.

#### **5.4 Suggestions for Further Research**

Based on the findings of this study, the following areas are suggested for future investigations:

1. That further investigations should be carried out to determine the effect of Computer Assisted Instruction (CAI) on students 'retention and interest in English Language and other subjects like Social Sciences, Arts, Sciences and so on.
2. Junior Secondary Schools were used as study sample in this research, primary school pupils, Senior Secondary Schools and students in Tertiary Institutions may also be used as research samples in future research.
3. Further studies can be replicated in other Education Zones, States of the Federation with larger samples to validate some of its major findings.
4. That students and teachers in the rural areas should also be remembered, so that they can be part of this innovative practice.

#### **5.5 Contribution to Knowledge**

1. This study has been able to establish the relevance of Computer Assisted Instruction in the teaching and learning of word meaning in Reading Comprehension in Junior Secondary Schools in Minna Niger State.

2. It has shown that teaching and learning of identifying main idea in Reading Comprehension is simplified and made interesting to the extent that students are always keen and willing to attend Reading Comprehension classes to improve their performance in Junior Secondary Schools in Minna Niger State.
3. It has added to the methods of teaching and learning of Comparing and Contrasting of ideas with the use of Computer Assisted Instruction in Junior Secondary Schools Minna Niger State.
4. The study has shown the effect of Computer Assisted Instruction to improve the teaching and learning of Summarization in the Reading Comprehension of Junior Secondary Schools Students in Minna Niger State.

#### **5.6 Limitation of the Study**

The following limitations can be observed regarding this study.

1. There were withdrawals of subjects who started the experiment but were not available for the post test.
2. The use of only JSS I students and only one unit from their English syllabus may affect the generality of the findings.
3. The limited number of Schools that were well equipped with Computer Laboratories as well as television monitors and DVD players made it difficult for the researcher to use a large sample.
4. Despite these limitations, the findings are significant particularly in the use of Computer Assisted Instructional (CAI) package in English language.

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**APPENDICES**

**APPENDIX A**

**READING COMPREHENSION PERFORMANCE TEST (RCPT)**

**NOTE:** The information you provide for this research work would be used strictly for the purpose of this research. Any information you provide would be treated with confidentiality. Please endeavor to read the questions carefully and provide an honest response. Thank you for your anticipated response.

**SECTION A**

Please respond to this section by ticking the check box to the response that applies to you.

1. **Gender:** Male  Female
2. **School:** JSS Barikin Sale  JSS Tunga

**SECTION B: WORD MEANING**

1. The Smallest social unit of people in a community or society is known as.....  
(A) Family (B) Relationship (C) Society (D) People
2. The head of a nuclear family is known as.....  
(A) Grandfather (B) Father (C) Uncle (D) Cousin
3. Your Uncle is your .....  
(A) Brother (B) Father (C) Father's Brother(D) Grand Father
4. Your Mother is also your Father's.....  
(A) Sister (B) Mother (C) Grandmother (D)Wife
5. The wife of your Uncle is your.....  
(A) Mother (B) Sister (C) Aunt (D) Cousin
6. The Children of the same parents are also known as:.....  
(A) Siblings (B) Cousins (C) Sisters (D) Parents

7. A Family that consist of the Father Mother, Children, Grandparents, uncles, aunts is also known as:.....  
 (A) Nuclear family (B) Extended Family (C) Troublesome Family(D) Family
8. The other people in the extended family are known as:.....  
 (A) Relations (B) Family (C) Siblings (D) Parents
9. The Father of your Father is your:.....  
 (A) Father (B) Uncle (C) Grand Father (D) Cousin
10. A Family that consist of the Father Mother, and Children, is also called.....  
 (A) Extended Family (B) Family (C) Mother (D) Nuclear Family
11. Your Mother's sister Is also your:.....  
 (A) Grandmother (B) Aunt (C) Sister (D) Mother
12. The Parents of both your Father and Mother are also Your:.....  
 (A) Parents (B) Grandparents (C) Relations (D) Uncles
13. The Son of your uncle or aunt is also your:.....  
 (A) Cousin (B) Brother (C) Family (D) Nephew
14. The son of your Sibling is also your.....  
 (A) Nephew (B) Cousin (C) Aunt (D)Uncle
15. The Daughter of your Brother or sister is also your:.....  
 (A) Nephew (B) Sister (C) Niece (D) Cousin
16. Your Father Is also your Mother's:.....  
 (A) Husband (B) Uncle (C) Cousin (D) Brother
17. The Head of the extended family is also known as:.....  
 (A) Father (B) Brother (C) Grandfather (D) Cousin
18. The sister of your grandmother is also your:.....  
 (A) Grand sister (B) Grandmother (C) Mother (D) Sister In-law
19. Your Mother Sister is also your Father's:.....  
 (A) Sister in law (B) Mother (C) Wife (D) Aunt
20. The Brother of your Father is your Mother's:.....  
 (A) Father in-law (B) Brother in-law (C) Cousin (D)Wife

**SECTION C: IDENTIFYING MAIN IDEA**

**PASSAGE I**

Ladi held the ball in her hands, she bounced it slowly on the ground. Once, twice she crunched low and then jumped. The ball flew into the air. Up, up, up it went. Then down, down, down into the basket. “Yes! She yelled “Nothing but net”

**1. The main Idea in this passage is.....**

- (A) How to throw a ball. (B) Ladi could Jump. (C) Ladi likes basketball. (D) Ladi makes a basket.

**PASSAGE 2**

The Frog sat on the side of the pond. He was very still. Its green color made it hard to see. bug flew near it. Its tongue zipped out and it gobbled it up. Then the frog was still again. It waited for the next bug.

**2. The main Idea in this passage is :.....**

- (A) Frogs are green. (B) Frogs eat Bugs. (C) Frogs do not move. (D) Frogs like to live in ponds.

**PASSAGE 3**

It was backward day at school. The students had to do things backwards. Some of them wore their T-shirts backwards. They took a test before they studied the lesson. Dessert was served first instead of last. They tried to walk home backwards but they bumped into each other and fell down.

**3. The main idea in this passage is:.....**

- (A) Dessert is supposed to come first. (B) The students had a backward day. (C) It is hard to do things backwards. (D) Students failed their test.

**PASSAGE 4**

People always refer to taxes in terms of their being much too high! in reality they probably even higher than you think because in addition to the federal income tax we

are now studying, there are many other federal, states and local taxes including sales taxes, inheritance taxes, state income taxes, Personal property taxes, real estate taxes and others.

These are just some of the most obvious ones.

**4. The main Idea in this passage is.....**

(A) Taxes are much too high. (B) We pay more taxes than we may realize. (C) taxes and real estate taxes are unfair. (D) Some taxes are hidden.

### **PASSAGE 5**

The Fact That Electronic computer is now used for data processing has led the general public to believe that it is a mysterious complicated science and that the computers are giant's brains. Both of these ideas are false. Computer is basically just a high speed adding machine that performs the functions it is told to do. If the input data are varied even a little, the computer is unable to operate until it is programmed to accept the variations. The business operation it performs are impressive only because of the extremely high speed of manipulation, but most of the operations have been used for decades. Unlike man, the computer performs repetitive calculations without getting tired or bored.

**5. The main idea in this passage is:.....**

(A) A Computer is a high speed adding machine. (B) A computer is a mysterious giant brain. (C) A computer is impressive because of its high speed. (D) Computer is superior to man in many ways.

### **PASSAGE 6**

I have a dog named Boots. I taught him lots of tricks. When I tell him to Boots will sit or lie down. He can also wave his paw to greet people. When I say "dance Boots" He will stand up on two legs and walk. Don't know of many dogs that can do such amazing tricks.

6. *The main idea in this passage is:*.....

(A) Boots is my Dog. (B) Boots can sit. (C) Boots is very smart. (D) Most Dogs can't dance.

**PASSAGE 7**

Adamu's Parents bought a new carpet for the living room. Now he has to take his shoes off when he enters the house. He is also not allowed to eat or drink in the living room anymore. Adamu's funny cat isn't allowed to play ball in there either. When his parents got the new carpet, there were lots of new rules.

7. *The main idea in this passage is:*.....

(A) Adamu cannot go into the living room (B) Adam's parents don't like the carpet (C) Adamu likes to make a mess(D) Adamu's parents made new rules so the new carpet stays clean.

**PASSAGE 8**

What in the world is aerodynamics? It has some things to do with air. The root word dynamic means it has something to do with action or motion. That's it! Aerodynamics is the study of air in motion. For instance, it is about what air does when its lights an airplane wing. The wright brothers knew about aerodynamics. That is how they did what they did.

8. *The main idea in this passage is:*.....

(A) An argument against flight. (B) A story about airplane. (C) A definition of aerodynamics. (D) A biography of the wright brothers.

**PASSAGE 9**

If you are feeling blue, what do you do? Perhaps you enjoy being sad, may be happy. When you feel sad, you can make yourself feel better. All you have to do is get some exercise and get some sleep. You should have at least one good friend. Doing good deeds will help. Writing in a diary about the good things in your life will help too. If you still feel a little sad, act happy. It works like magic to make you feel better.

**9. The main idea in this passage is.....**  
(A) Magic works to make you feel better. (B) You should have at least one good friend. (C) Some people like to be sad. (D) When you feel sad, you can make yourself feel better.

**PASSAGE 10**

Seated on the throne, King Musa wore a golden crown, had golden rings on each finger and held a scepter. His vest was embroidered with golden thread and even his shoes had golden ornaments. He had a golden box filled with gold coins. He named his daughter Marigold.

**10. The main idea in this passage is.....**  
(A) King Musa loves Gold. (B ) King Musa sold lots of gold. (C) King Musa had a heart of gold. (D) King Musa hates gold.

**PASSAGE 11**

Every night the moon looks a little different. This is because as the moon moves around the earth, sunlight shines on different parts of the moon. The part of the moon that the sunlight is shining on is the part of the moon we see. The moon goes through four main stages. The first quarter moon, full moon, third quarter moon, and new moon are the four stages. It takes about 29 days for the moon to finish all the stages. If it is a clear night looks in the sky. You will find the moon in one of its stages.

**11. The passage is mainly about.....**  
(A) Why the moon looks different every night. (B) Why the earth moves around the sun. (C) How the sun can be seen in the evening. (D) How the moon is different from the sun.

**PASSAGE 12**

Patty loves to play games. Her favorite game is chess because it requires a great deal of thought. Patty also likes to play less demanding board games that are based mostly

on luck. She prefers monopoly because it requires luck and skills. If she's alone, Patty likes to play action video games as long as they aren't too violent.

**12. The main idea in this passage is.....**

- (A) About playing game. (B) Teaches you how to play monopoly. (C) About how hard different games are to played. (D) About games Patty likes to play.

**PASSAGE 13**

Clown College did not charge a fee to students. When Clown College first started, classes were six days a week and lasted for thirteen weeks. Students wore baggy trousers and giant shoes to class. They learned to juggle, walk on stilts and ride unicycles. They learned how to balance to fall correctly and how to clown around. They even learned how to put on makeups and costumes.

**13. What is the main idea of this passage?.....**

- (A) Clown College was free for its students. (B) Students in Clown College wore funny clothes. (C) Learning to become a clown is demanding and takes physical skills. (D) Students in Clown College must wear make - up.

**PASSAGE 14**

When a person decides to get a dog, he or she has many inds to choose from. As a rule, Short haired dog are best for cities. Beagles, Boston terriers and Dachshunds make good city pets. Great danes are short-haired too. However they are too big for city living. It is hard to give them all the exercise they need. Setters, springer, spaniels and collies are especially good as country dogs.

**14. What is the main idea of this passage? .....**

- (A) Dogs are good pets. (B) Some Dogs are better than others for city life. (C) There are many kinds of Dogs. (D) Short-Haired Dogs are better for cities.

**PASSAGE 15**

Teeth can tell you what kind of food a mammal eats. Plant Eaters (Herbivores) like deer have large, flat molars for grinding plant. Animals that eat both plants and meat

(Omnivores) have strong Canines and Molars for tearing and grinding foods. Animals that are meat eaters (Carnivores) have Canine teeth for cutting and tearing.

**15. The main idea of this paragraph is.....**

(A) Animals have different kinds of teeth. (B) An animal's teeth can tell you what kind of food the animals eat. (C) Animals that are meat eaters have Canines for cutting and tearing but plant eaters have flat molars for grinding plants. (D) Animals that eat both plants and meat have strong Canines and Molars for tearing and grinding foods.

**PASSAGE 16**

Jill has a cat called whiskers. Whiskers stays indoors even on a nice day. We leave the door open but Whiskers still hides inside. We know Whiskers would like to go outside we do not know why the Cat stays indoors. Whiskers will get to the door that goes outside, but she will not go through the door.

**16. What is the main Idea of the Paragraph?.....**

(A) Jill has a Cat named Whiskers. (B) Whiskers stays indoors. (C) Whiskers is afraid of doors. (D) Jill loves her Cat.

**PASSAGE 17**

The fairground was busy with kids and their families having a good time. There was laughter and screams of delight. Kids were smiling and skipping along the paths around the fairground rides. The kids raised their hands in joy as the rides went up and down.

**17. What is the main idea of the paragraph?.....**

(A) Fairground is a busy place. (B) Fairground has lots of rides. (C) Fairground is Fun for Families. (D) You can skip at the fairground.

### **PASSAGE 18**

Not all plants grow in the same way. Some plants grow and reproduce in one year and are called annuals. Some plants grow and reproduce in two years and are called biennials. Other plants grow and reproduce for many years and are called perennials.

*18. What is the main idea of this paragraph?*

(A) Plants grow and reproduce for many years and are called perennials. (B) Some plants grow and reproduce in two years and are called biennials. (C) Some plants grow and reproduce in one year and are called annuals. (D) Not all plants grow in the same way.

### **PASSAGE 19**

Lisa knew all of the seven dwarfs except one. She remembers Grumpy, Sleepy and Bashful. And of course she couldn't forget Doc and Dopey were her favorite. But there was one she just could not remember. Let's see. There's also Sneezzy, and that's six. But she could not remember that last one. What was his name?

*19. What is the main idea of the passage?*

(A) Dopey was Lisa's favorite dwarf. (B) Lisa could not remember the name of one of the dwarfs. (C) There were seven dwarfs in all. (D) Lisa had a good memory.

### **PASSAGE 20**

Microchips provide the power for wristwatches. They are also the brains in our computers, and they control robots. These chips are used in video games and space shuttles. They make our cameras, radios and televisions small and light.

*20. What is the main idea of this passage?*

(A) How Computers work. (B) Why Televisions are small. (C) How Microchips are used. (D) How Cameras work.

## SECTION D: SUMMARIZING PASSAGES

### PASSAGE I

When some people think about Texas, they think of cowboys on the open range rearing cattle up a dusty trail. However, Texas has much more than open prairie with large herds of cows. There are the mountains of West Texas, the Pinyon Hills of East Texas, and the Emerald waters off coastal harbors with numerous sailboats, powerboats, inland lakes, rivers, Swamps of South East Texas with alligators and other exotic wild life.

*1. The Summary of this passage is.....*

(A) There are lots of Cows in Texas. (B) There are many different, varied parts of Texas (C) Texas is one of the biggest states in the United states. (D) There are Alligators in the Swamp land of South East Texas.

### Passage 2

Tomorrow is Musa's birthday. He is excited because he gets to pick where he will eat dinner. Will it be Chinese food at a big restaurant, or will it be a fried at Yahuza Chicken spot? He just couldn't decide. Then there was always Shawarma shop with a great spicy shwarma. How would he ever decide? Maybe he would just flip a coin.

*2. The summary of this passage is.....*

(A) Musa has many restaurants to choose from for his birthday. (B) Musa loves Chinese food. (C) The Shwarma shop has the best Shwarma. (D) Musa will choose a place by flipping a coin.

### PASSAGE 3

It started when they got to the bears. Peter felt tired and his stomach hurts. He dragged himself over to see the elephants, which were eating from a stack of hay. Normally, the elephants were his favorite. Without much interest, Peter followed his classmates to the camels, which were busy swatting flies with their tails. Peter knew

he should be having fun at the zoo, but he just felt terrible and all he wanted to do was lie down and rest. Even the lions and tigers did not interest him now.

**3. The summary of this passage is.....**

(A) Peter’s favorite animals were elephants. (B) The camels were swatting flies with their tails. (C) It was really hot at the zoo. (D) Peter didn’t enjoy the zoo because he felt really bad.

**PASSGAE 4**

For the walls, Hauwa thought she would use a bright, yellow paints. She would pick a boarder that had mostly bright red and green colors, and may be a little bit of blue. She already has found some curtains that were sky blue with streaks of red, blue, yellow that she thought would go great with the walls. And finally she had picked a carpet that was mostly blue with specks of red and yellow. Hauwa couldn’t wait till she was done decorating her room. It was really going to look awesome.

**4. The summary of this passage is.....**

(A) Hauwa likes bright colors. (B) Hauwa was going to paint her room. (C) Hauwa was picking out colors and materials to decorate her room. (D) Yellow is a good color to paint your walls.

**PASSAGE 5**

Right now Jason was playing right field. He really wanted to play third base. Earlier this year, Coach had put him left field and second base in a game, but never at third base. Once in practice, Coach let him play third base, but he kept missing ground balls. When he did stop one, he made a bad throw to first base. May be if he kept practicing, Jason would be good enough to play third base. That was his dream.

**5. The summary of this passage is.....**

(A) Jason really wanted to play third base. (B) Jason was the best player on his team. (C) Jason has trouble catching ground balls. (D) Jason was too lazy to practice.

**PASSAGE 6**

San Francisco is located on the coast of California in an area often called the bay area. The weather is generally very mild, seldom getting really cold or really hot. Its mild climate is one reason many people live there. It seldom snows in San Francisco and generally does not get below freezing during the winter. Even in the middle of the summer, temperature may be in the mid 80's with a cool breeze from the bay keeping the weather very comfortable.

*6. The Summary of this passage is.....*

(A) San Francisco has many neat things to do. (B) It seldom snows in California. (C) Many people choose to live in California. (D) The weather in San Francisco is generally very mild.

**PASSAGE 7**

Halima watched the ants as they carried small crumbs down the trail to the ant hill. She thinks ants are very hard working and industrious little creatures. They always seemed busy, and you never saw an ant just laying around doing nothing. They were carrying food building tunnels, or defending the anthill. One thing you could say about ants is that they sure aren't lazy.

*7. The summary of this passage is.....*

(A) Ants carry many things. (B) Some ants may bite you. (C) Ants are hard workers. (D)Some ants help take care of the Queen.

**PASSAGE 8**

The first book Chris read in fifth grade was about a lost kitten. Then he read a book about a family of bears, and then he read a book about a wild Kangaroo in Australia. It seems every book Chris read is about animals. Last week he found a good book about snakes and reptiles and another book about elephants. Today Chris went to the Library and he checked out a book about dolphins, whales and other animals that live in the sea.

8. *The summary to this passage is .....*

(A) Chris likes kangaroos. (B) Chris is in the Fifth grade. (C) Chris reads a lot of books about animals. (D) Dolphins and whales live in the sea.

**PASSAGE 9**

Is it ant, you wonder or a termite? Ants resemble termites, but they are quite different and can easily be distinguished. In contrast to termite, ants are usually dark in color, are hard bodied, and have constrictions between the thorax and abdomen. Termites are light in color and shed their wings. Flying ants do not shed their wings. Also ants and termites belong to different orders.

9. *The best summary of this paragraph is .....*

(A) Termites are lighter in color and lose their wings at certain stage of development. (B) Ants are dark in color, hard bodied and belong to a different order than termites. (C) Ants and Termites are both Insects and have many things in common. (D) Although ants resemble termites, they have differences that can be easily seen.

**PASSAGE 10**

It was beginning to get dark. We were still not home yet. I bet Dad is going to be mad at us, i thought, i yelled at my brother to ride his bike faster, but it was difficult to ride bikes uphill. I was so tired that every muscle in my leg were burning, my brother finally got off his bike and sat down. I stopped and went back to help him. Suddenly there was a car coming towards us. I could see headlights. It was Dad. He had come to look for us. Since we were so late getting home. I knew I was going to get into trouble, but at least we were safe. Dad picked us up and took us home.

10. *What is the best summary of this passage?*

(A) Two boys got into trouble. They were very late getting home. They could not ride their bikes anymore. (B) Two boys were late getting home. Dad came looking for them. He took the boys home. (C) He took the boys home. Dad came looking for

them. Two boys were late getting home. **(D)** The two boys got into trouble and got lost. Their Dad got mad and sent the police to find them.

### **PASSAGE 11**

Angie is spending summer at her aunt and uncle’s Tennessee farm so that she can experience something different from her urban life. The first chore her aunt assigns her is to diffuse organic grains in front of the chickens coop at 6:00 am every morning. Thus provides forage for the chickens. It doesn’t take Angie long to learn that it is best to diffuse the grains quickly and get out of the way unless she wants the chickens to come pecking her way.

*11. Which statement best summarizes the passage?*

**(A)** Angie goes to Tennessee to visit a farm and does a bunch of Chores. **(B)** Angie goes to live on a farm and quickly wishes she is back home in the city. **(C)** Angie visits family in Tennessee and gets a quick introduction to farm life. **(D)** Angie feeds the chickens and learns how to quickly get out of their way.

### **PASSAGE 12**

Eric was very excited and confident that he was going to win the soccer match because he was one of the best goalies. During the game he tried hard and worked with his team, but nothing went his way. The other team worked harder and scored more points than Eric’s team.

*12. Which sentence best summarizes the passage?*

**(A)** Eric’s team won the victory. **(B)** Eric’s team was defeated. **(C)** They were executed. **(D)** They were after the game Eric’s team got pizza.

### **PASSAGE 13**

Rabi wanted to get out of taking her test in science. She asked to go to the rest room during science class. As she wandered along the hall the shiny red fire drill seems to call her name. Rabi looked left and then right and pulled the alarm. Green spray

came out all over her arms, just as she began to run away Ms Hassan saw Rabi's green arms and took her straight to the office. Turns out she still had to take the test.

**13. Which sentence best summarizes the passage?**

(A) Rabi did not study for a test so she made a plan to hide in the rest room during the class. (B) Rabi wanted to get out of a science test, so she pulled the fire alarm. She got caught and ended up in (C) Rabi hates tests so she decided to skip school instead of going to class on test days. (D) The fire alarm so that Lami could get out of taking a science test.

#### **PASSAGE 14**

Musa and Adamu went to the market to buy shoes. Adamu decided that he was going to steal a pair of shoes from the market. Musa tried to talk Adamu out of doing it. When they got to the market and entered the shoes' shop, Musa went to look at some shoes. Adamu pretended to be looking at the shoes, when he suddenly bolted for the door with a pair of Nike. The security guard reached out and grabbed Adamu's arm and took him to the station. Musa called his Mom to pick him up.

**14. Which sentence best summarizes the passage?**

(A) Musa wanted a pair of shoes from the Market so he got his friend Adam to steal them. (B) Adamu thought he could get away with stealing shoes from the market and he did. (C) Musa had no idea that Adamu planned to steal from the market when they planned to buy shoes. (D) Musa tried to talk his friend Adamu out of stealing shoes from the market, but when he did it anyway he got caught.

#### **PASSGAGE 15**

The faculty of Newton Elementary School invites you to attend our annual honors' dinner on Thursday, June, 17, 2005 in the school cafeteria.

A meal will be served at 7:00pm. The cost of the meal is N7:50 per person. Please respond by June 5<sup>th</sup> with the number of family members attending. We look forward to seeing you there.

**15. Which of the following is the best summary of the invitation?**

(A) The teacher at school is having a dinner to which you are invited. It will be at 7:00pm on June 17 and will cost N7:50 per person. (B) Students need to decide if they want to go to the honors' dinner with their teachers and family at Newton Elementary School. (C) Newton Elementary School is going to have an honors' dinner. The teachers hold this dinner once every year for all of the honors students. (D) The dinner cost N7:50 people. You need to let the teachers know by June 5. How many people are you bringing to the dinner?

**PASSAGE 16**

One night Paul could not go to sleep. It was 10:00pm and he was still awake. He tried closing his eyes, but that didn't work. He tried to lie on his stomach, that didn't work either. He tried to count to 100, that only made him think more. Finally he got up and got a drink of water that made him feel better. He went back to bed and fell asleep.

**16. What is the best summary for this story?**

(A) Paul could not go to sleep. He got a drink of water; he tried to count to 100. He finally went to sleep. (B) Paul could not go to sleep. He tried many things to help him go to sleep. He got a drink of water. Finally, he went back to bed and went to sleep. (C) He went back to bed and went to sleep. He tried to count to 100 one night Paul could not go to sleep. (D) Paul slept all the night through without any stress.

**PASSAGE 17**

Reform means to make things better. Jane Adams saw things in Chicago to reform. She saw poor people living in crowded neighborhoods. The houses were small. They did not have enough rooms for all of the people who lived in them. The streets were dirty. People did not have places to get clean water. They did not have places to wash. Jane Adams wanted to help the poor people have better life and she did. She believed that helping poor people would make everyone's life better. She would make Chicago better.

*17. Which of these is the best summary of the above passage?*

(A) Jane Adams lived in Chicago. (B) Immigrants moved to Chicago. (C) People need homes. (D) Jane Adams helped people.

**PASSAGE 18**

In 1889 Jane Adams set a place to help people. She called it Hull- House. Hull House was a settlement house. It helped immigrants to Chicago. Immigrants are people who move to a new country. The immigrants needed to find new homes. They needed to learn English. They needed to learn about the city. Jane Adams wanted to teach them the skills they needed to live well on their own. When people came to thank her that was fine. But she liked it better when they did not come to back. She was glad that they were independent.

*18. Which of these is the best summary of the above passage?*

(A) People learned English at Hull-House. (B) Many People lived in settlement houses. (C) Immigrants move to new place. (D) Hull-house helped immigrants in many ways.

**PASSAGE 19**

Kayla and Kiki are two dolphins in a show at a local aquarium. Each afternoon they perform for the audience who comes to watch them. Kayla and Kiki know many tricks. They jump through hoops. They walk across the water using their tails. They leap high out of the water to take a fish from the dolphins' trainer.

Kayla and Kiki are beautiful dolphins. They are about 12 feet long. They each weigh about 400 pounds. They can stay under water for almost 15 minutes while holding their breath. Kayla and Kiki are very gentle animals. The audience loves seeing them perform and learning about them.

19. The summary of the above passage is .....

(A) Kayla and Kiki are twins. (B) Both dolphins do not have any skill (C) Kayla and Kiki are well trained dolphins with lots of tricks and skills. (D) Kayla and Kiki are hostile animals.

**PASSAGE 20**

Rex is a police dog. He can smell really well. He works at the airport. He helps the police to make sure there are no bad drugs going on airplanes.

On Friday Rex was at the airport. He started to bark. Rex had found something. The police thought Rex was being silly. When the policeman opened the boxes, the bad drugs were hidden there. Rex was right again.

*20. Which of the following options summarize the above passage?*

(A) Rex is a drug addict that was caught at the airport. (B) The policeman thought Rex was silly by barking. (C) Rex is a security dog that helps in catching criminals who deal in bad drugs. (D) Rex cannot bark.

## **SECTION E: COMPARE AND CONTRAST**

### **PASSAGE I**

#### **BANANAS**

Bananas are yellow fruits that grow in hot climate. They grow on tall plants, in bunches called hands. They are easy to carry and fun to eat. Sometimes, bananas are called the “perfect fruits” because they have many nutrients to keep you healthy. They have lots of potassium which help your muscle grow.

For delicious treat, add some banana slices to other foods like cereal, ice cream or peanut butter sandwich. A banana is also an excellent breakfast food.

#### **PINEAPPLES**

Pineapples are another yellow fruits that grow in hot climate. They grow on low plants close to the ground. Pineapples are very juicy and sweet. They are not very easy to carry around because they are large and have prickly skin. Pineapples are very healthy food. They have lots of vitamin c, which helps your body fight germs and it helps build strong bones.

Slice of pineapple taste wonderful when added to other foods like pizza, ice cream and hamburgers. Some people even put pineapple slices on cakes.

#### **QUESTIONS:**

**1. According to the passage above, how are pineapples and bananas alike?**

(A) They are both dirty fruits. (B) They both grow in bunches. (C) They are both easy to carry. (D) They both grow in hot climate.

**2. How are Bananas and Pineapples different?**

(A) Pineapples are healthy but bananas are not. (B) They are both easy to carry around (C) Pineapple grow on low plant while bananas grow on tall plants. (D) Both bananas and pineapples are healthy.

## PASSAGE 2

### THE BEACH

Going to the beach is a lot of fun. At the ocean, you can see colorful fish and different kinds of birds. If the weather is warm enough, you can go for a swim. Most beaches have lots of space to run, play, build sand castles, fly kites, and have a picnic. When you run on the sand be careful that a jelly fish doesn't sting you.

### THE MOUNTAINS

Visiting the mountains is very exciting. You can see beautiful tall trees and many different kinds of green plants. If you watch carefully and quietly, you might even see a deer, a squirrel and or a snake. If you feel strong, you might go for a long hike on a trail or even climb to a mountain top. There is plenty of space to play Frisbee, eat lunch outdoors or play hide and seek. At night, you can build a bonfire. Be careful of the mosquitoes.

### QUESTION

**3. According to these two paragraphs, how are the mountains and the beach alike?**

(A) There is plenty room to play at both places. (B) Both the beach and the mountains are hot. (C) There is no enough room to play at both places. (D) There are no animals at both beach and the mountains.

**4. According to the above paragraphs, how are the mountains and the beach different?**

(A) There is plenty of room to play at both places. (B) The beach has different animals than the mountains. (C) The beach is hot and the mountains are cold. (D) The beach is a safer place to visit than the mountains.

### **PASSAGE 3**

#### **DOLPHINS AND PORPOISES**

Porpoises and Dolphins are fascinating and beautiful sea creatures. They are in the group of whales called toothed whales. Many people think dolphins and Porpoises are fish but this is simply not true. They are mammals.

Both Porpoises and Dolphins use Echolocation. This means they send out sounds and then listen for echoes bouncing back. Echolocation helps them find food and escape predators.

Their bodies are shaped differently. Porpoises are shorter with more rounded beaks and bodies. The dorsal fins on their backs are also shorter and less pointed. Dolphins on the other hand, have longer, more pointed beaks, and their dorsal fins are taller and more pointed.

#### **QUESTION**

**5. According to the above passage, how are porpoises and Dolphins alike?**

(A) They are both mammals, toothed whales, and echolocation. (B) They are both of same height. (C) They both have pointed beaks. (D) They are both fish.

**6. How are both Dolphins and porpoises different?**

(A) Both are Mammals. (B) They both live in water. (C) Their bodies are shaped differently. (D) They are both in group of whales.

## **PASSAGE 4**

### **BEAUTIFUL BUTTERFLIES AND MARVELLOUS MOTHS**

What is the first thing you think of when you hear the words butterfly and Moth? Flying large winged insects with two long antennae? A four stage life cycle called metamorphosis.

Well also of these are true, butterflies and moths also have other things in common. They have a number of differences as well.

First, let's look at a few other ways they are alike. Moths are nocturnal while butterflies are diurnal and are mostly active during the day. Resting posture: Butterflies always fold their wings above their backs when perched on trees, flowers and branches while Moths always rest with their wings spread to their sides.

Both are holometabolous (have larvae, pupae and adult stages) are never eusocial, both have a mouth called a proboscis which allows it to suck up liquids.

## **QUESTION**

*7. According to the passage above, how is the butterfly and moth alike?*

(A) They are not insects. (B) They are both colorful and bright. (C) They both eat flesh. (D) They both have the same life cycle.

## **PASSAGE 5**

What is the first thing you think of when you see or hear the word frog or toad? Loud "Ribits" or Croaking calls? Tadpoles swimming in a pond? Long-legged jumpers?

Well frogs and toads make loud vocal sounds, and most do begin as tadpoles (though there are few species that give birth to live young. However, only the true frogs are long legged jumper, true toads have much shorter back legs that work better for walking in tiny haps.

Both frogs and toads are ectothermic or “cold blooded”. Their body temperature is similar to their surroundings. Both have long sticky tongues that can flick out fast to catch bugs. They both have no scales.

While both frogs and toads may look similar to the average person, those with animal knowledge and a careful eye for observation can easily spot their differences. Adult toads live mostly on land while frogs go back and forth from land to water. Toads have much dryer and bumpy skin, Frogs usually have a moist. Toads usually have plumper bodies than Frogs.

Next time you see a four legged amphibian swimming through the water or hopping across your backyard, take a closer look to determine if it is a frog or a toad.

### **QUESTION**

**8. According to the above passage, how are toads and frogs alike?**

(A) Both are dry and bumpy. (B) Both are cold blooded and have long sticky tongues. (C) Both live on land. (D) Both have scales.

**9. How are Frogs and Toads Different?**

(A) Frogs are cold blooded while toads are not. (B) Toads have long sticky tongue while Frogs don't. (C) Toads have plumper bodies than frogs. (D) Toads and Frogs live on land

### **PASSAGE 6**

#### **IS THAT A BOA OR A PYTHON**

When people think of snakes, boas and pythons are two species that often come to mind. They are alike in so many ways, that many people can't tell which is which.

Both types of snakes use their forked tongues to smell. Those that hunt at night can widen the pupils of their eyes to let in more light. They also use heat sensors on their lips to

Some boas and snakes look so similar only a reptile expert or herpetologist can tell them apart. One example of this is the emerald three boa and the green tree python.

So, how are boas and Pythons different? First a boa's skull bones aren't arranged the same as a Python's. Pythons have more bones in their skull and more teeth too. Boa young hatch inside their mother and are born alive. This is unusual because most other reptiles hatch from eggs. Pythons on the other hand lay eggs. Most Boas are native to the Americas while most Pythons are native to Africa.

### **QUESTION**

*10. According to the passage above, how are Boas and Pythons alike?*

(A) They both lay eggs. (B) They both are native to America. (C) They both use their forked tongues to smell. (D) They don't use heat sensors.

*11. How are boas and pythons different?*

(A) Both are reptiles. (B) Pythons have more bones in their skulls while boas have fewer bones in their skulls. (C) They are both native of Africa. (D) Boas and Pythons are the same species.

### **PASSAGE 7**

#### **TALL MARY SHORT HARRY**

Mary was a tall lady who lived in a big house near the sea. She liked to go fishing and she worked as a painter for a living. Mary did not need a ladder because she was so tall. Sometimes she could not fit through the doorway of stores and houses because she was so tall. When Mary came home from work each day she would sit in her backyard and watch dolphins swim by.

#### **SHORT HARRY**

Harry was a short man who owned a paint store. His friend, Tall Mary would come by almost every day to buy paint for her job. Sometimes they would laugh because

Mary had to bend down to get through the front door of the store. Harry did not like to paint, but he would often go fishing with Mary. The two were very good friends.

### QUESTION

*12. In the above stories, how were Mary and Harry alike?*

(A) They were both tall. (B) They are both short. (C) They both like fishing. (D) They both like to paint.

*13. How are Mary and Harry different?*

(A) Mary and Harry are friends. (B) Mary like panting while Harry does not. (C) Mary and Harry like dancing. (D) They both don't like fishing.

### PASSAGE 8

#### APPLES AND ORANGES

Apples and Oranges are both fruits, which mean that they have seeds inside of them. Each has a skin but Orange skin is thick and easy to peel. Apple skins are thinner and do not peel easily. Oranges also contain more acid than Apples, but both fruits are delicious.

### QUESTION

*14. From the above, how are apples and oranges alike?*

(A) They are both fruits with skin and are healthy. (B) They are both not edible. (C) They both are harmful. (D) They both are not delicious.

*15. How are oranges and apples different?*

(A) They are different fruits. (B) They have skins. (C) Apples have thinner skin than oranges, oranges have more acid than apples. (D) Apples and oranges are not healthy.

## **APPENDIX B**

### **MARKING SCHEME**

#### **WORD MEANING**

1. ... a

2. ... b

3. ... c

4. ... d

5. ... c

6. ... a

7. ... b

8. ... a

9. ... c

10. ... d

11. ... a

12. ... b

13. ... c

14. ... a

15. ... c

16. ... a

17. ... c

18. ... b

19. ... a

20. ... b

## IDENTIFYING MAIN IDEA

1. ... c

2. ... b

3. ... b

4. ... a

5. ... a

6. ... c

7. ... c

8. ... c

9. ... d

10. ... a

11. ... a

12. ... d

13. ... c

14. ... c

15. ... d

16. ... c

17. ... c

18. ... d

19. ... d

20. ... c

## COMPARE AND CONTRAST

1. ... d

2. ... c

3. ... a

4. ... c

5. ... c

6. ... d

7. ... d

8. ... c

9. ... b

10. ... c

11. ... c

12. ... b

13. ... a

14. ... b

15. ... c

16. ... a

17. ... c

18. ... a

19. ... d

20. ... a

## SUMMARIZATION

1. ... b

2. ... a

3. ... a

4. ... a

5. ... d

6. ... d

7. ... c

8. ... c

9. ... c

10. ... d

11. ... c

12. ... b

13. ... a

14. ... d

15. ... a

16. ... b

17. ... d

18. ... d

19. ... c

20. ... c

## APPENDIX C

Lesson plan for the experimental group instruction

### LESSON I

- Subject: English Language
- Topic: Reading Comprehension
- Sub-topic: Word Meaning In Context
- Class: J.S.S. I
- Duration: 35 Minutes
- Instructional objectives: By the end of the lesson students should be able to:
- a. Define word meaning in context
  - b. List three(3) types of context clues
- Instructional Materials: Computer and CAI Package
- Entry Behaviour: The students are used to reading stories from their story books.
- Instructional techniques:
- Instructional procedures:
- Step I: The computer defines what word meaning in context is: word meaning in context is defined as word,

sentences and ideas that come before and after a word or phrase. The computer further explains that when you read a passage, circle any new words or that which you don't understand. Then, look in the context to find clues. Words or phrases that hint at what the new word means. An author often includes his cues, to help the reader expand vocabulary and grasp meaning of the passage.

Step II:

The computer gives examples with passages for better understanding of what word meaning in context is e.g.

1. For the most part we are an intemperate people: we eat too much when we can, drink too much, indulge our senses too much. Even our so-called virtues are interpretative: a teetotaler is out context not to drink. He must stop a he drinking in the world; vegetarians among us would outlaw the eating of meat. Intemperate in this passage means;
  - a. Domineering
  - b. Lazy
  - c. Very annoying
  - d. Immoderate.

In the passage above shows the people of self-control, immoderate. Temperate outburst to eating and drinking too much.

2. My friend is so loquacious that once she gets started talking you can hardly get her to shut –up. From the sentence above loquacious means
  - a. Talkative

- b. Eloquent
- c. Brave
- d. Lazy

Step III: The computer explains further what context clues are. Context clues are words or instance an author gives to help define a deficit or unusual words. The clue may appear within the same sentence as the word to which it refers, or it may follow in a preceding sentence. The word or hint offers insight, either directly or indirectly, into the word's meaning.

Step IV: The computer explains that there are 5 types of context clues that can help to understand the meaning of words in whatever piece of writing or material for example;

- i. Definition
- ii. Synonyms
- iii. Contrast/antonyms
- iv. General context
- v. Punctuation

- i. Definition:- sometimes a word's or phrase's meaning is explained immediately after its use. For example: kware, which is a store that sells men's clothing is becoming more common today
- ii. Synonym clue:- sometimes a hard word or phrase is said in a simple way. For example: Tani was sent to kware to find a new suit. He needed to wear one for his uncle's wedding. Because the sentence says that Tani would find a suit at kware, then it must be a place where men's clothes are sold.
- iii. Contrast:- sometimes a word or phrase is clarified by the presentation of the opposite meaning, somewhere close to its use.

Look for signal words when applying context clues.  
Example: “Tani wanted to go to kware, but Halima wanted to shop at the boutique” the signal word “but” tells the reader that an opposite thought is going to be stated.

- iv. General context:- sometimes words or phrases are not immediately clarified within the same sentence. Relationships which are directly apparent are inferred or implied. The reader must look for clues within before and after the sentence in which the word is used. For example: “kware was Tani’s favourite place. He loved shopping for nice suits, the people who worked there were so kind and helpful.

Evaluation:

- i. Define word meaning in context

- ii. Explain any two (2) context clues known to you

Summary:

The computer summarizes the lesson by going through the lesson once again.

Conclusion:

The computer gives the students an assignment to find the meaning of the following sentences in context.

- i. Faint: I thought that I heard a faint scratching noise, but I figured that it might just be in my head.
- ii. Brisk: Abu had a hard time keeping up with her mother, who was walking at a brisk pace.
- iii. Vague: She does not communicate with me so I only have a vague idea as to how I can help.

## LESSON II

Subject:	English Language.
Topic:	Reading Comprehension.
Sub Topic:	Identifying Main Idea.
Class:	J.S.S. I
Duration:	35 Minutes
Instructional Objectives:	By the end of the lesson students should be able to:  <ol style="list-style-type: none"><li>i. Define main idea.</li><li>ii. Identify the main idea in a sentence.</li><li>iii. Differentiate between stated and unstated main idea.</li></ol>
Instructional material:	Computer and CAI package.
Entry Behaviour:	The students have learned reading comprehension, word meaning in context.
Instructional techniques:	The computer defines what main idea is while the students listen attentively. A main idea is an important information that tells more about the overall idea of a paragraph or section of a text. The computer further explains that for every passage or story read the authors have a message for readers.

Main idea is the most important point of the message the author wants to share. Figuring the main point helps us better understand what is read. The main idea can usually be stated in a few words or a sentence, and the other information in the passage explains the details.

Step II:

The computer further explains how to identify main idea while reading. While reading, you should think about what the story or passage is mostly about and asks yourself these questions.

- i. What is the most important point the author is trying to make?
- ii. Do the details support that point?

Step III:

Main ideas are often found in the learning of paragraphs. The first sentence often explains the subject being discussed in the passage.

Step IV:

Main ideas are also found in the concluding sentences of a paragraph. It can be expressed as a summation of the information in the paragraph as well as a link to the information in the next paragraph.

Step V:

The computer explains what stated main ideas and implied unstated main ideas are: A stated

main idea is a sentence found in the reading passage which states the topic and the main point or points being made about the it has a topics sent while unstated or implied main idea is that which is not stated directly, but is strongly suggested by the supporting details in the passage. The reader is left with the responsibility of composing a statement of the main idea. It has no topic sentence.

**Evaluation:**

- i. What is main idea?
- ii. Differentiate between stated and unstated main idea.
- iii. List two (2) steps used in identifying the main idea.

**Summary:**

**Conclusion:**

The computer concludes by going through the lesson once again.

### LESSON III

Subject:	English Language
Topic:	Reading Comprehension
Sub topic:	Summarization
Class:	J.S.S1
Duration:	35minutes
Instructional objectives:	By the end of the lesson the students should be able to:-  <ul style="list-style-type: none"><li>i. Define summarization</li><li>ii. List techniques for summarization</li><li>iii. Summarise a passage</li><li>iv. List 2 types of summarization</li></ul>
Instructional material:	Computer and CAI package.
Entry Behaviour:	Students have learned reading comprehension identifying main idea.
Instructional technique:	Use of examples and explanatory techniques.
Instruction Procedure	
<b>Step I:</b>	The computer defines what summarization is:-  summarization involves taking the main ideas from a piece of text and re-writing them in your

own words. It is significantly shorter than the original text and tends to give an overview of a topic area. The main requisite of any summary is to present a concise and clear presentation of the main idea.

**Step II:**

While eliminating unnecessary details that are not necessary for the overall understanding. Let's take these passages for example; The fairground was busy with kids and their families having a good time. There was laughter and screams of delight. Kids were smiling and skipping along the paths around the fairground rides. The kids raised their hands in joy as the rides went up and down.

Apples and Oranges are both fruits, which mean that they have seeds inside of them. Each has a skin but orange skin is thick and easy to peel. Apple skin are thinner and do not peel easily. Oranges also contain more acid than apples, but both fruits are delicious.

**Step III:**

The computer further explains that there are two types of summarization namely:- informative and descriptive information. Summarization accurately conveys the information contained in a text or in other types of resource. Informative summarization

is objective, that is, without personal opinion in presenting the ideas from the source text for example abstract, outlines and synopses while descriptive summarization on the other hand depicts the original text rather than directly presenting the information after play the role of review for fictional or literary works books movies video clips articles and so on.

#### **Step IV**

The computer explains that to write a good summary require some certain skills that includes

- i. Reading comprehending text:- this involves unpacking lengthy sentences and decoding challenging vocabulary
- ii. Ideas and key points which means that they must have a good enough understanding of the text to distinguish between essential and nonessential information and
- iii. They must express the information in their own words. This means that summarizing text requires both comprehension and expression skills.

## LESSON IV

Subject:	English Language
Topic:	Reading Comprehension
Sub topic:	Compare and Contrast
Class:	J.S.S1
Duration:	35minutes
Instructional objectives:	By the end of the lesson the students should be able to:- <ol style="list-style-type: none"><li>i. Define compare and contrast</li><li>ii. List 3 steps used in compare and contrast</li><li>iii. Identify 5 signal words used in comparing and contrasting</li></ol>
Instructional material:	Computer and CAI package.
Entry behavior:	Students have learned reading comprehension
Summarization:	
Instructional technique:	Use of examples and explanatory techniques
Instructional Procedure:	

**Step I:** The computer defines compare and contrast to the students while they listen attentively compare:- is

the ability to identify the similarities and differences between two things while contrast- is the ability to identify only differences between two things or objects that makes it easy to see that they are asking to compare and or contrast. The computer further explains that to compare and contrast means to analyze two subjects by either comparing them contrasting them or both the purpose of doing a comparison or contrast is not to state the obvious but rather to illustrate subtle differences or unexpected similarities between two things or objects.

**Step II:**

The computer gives examples of sentences to explain compare and contrast e.g apples and oranges are both fruits which means that they have seeds inside of them which has a skin but orange skins are thick and easy to peel. Apple skins are thinner and do not peel easily. Oranges also contain more acid than apples but both fruits are delicious.

In the above paragraph the writer is trying to compare and contrast between apples and oranges, that is the writer is trying to bring out the

similarities and differences there are between apples and oranges. Now let's bring out the similarities and differences.

Compare / similarity	Contrast / differences
They are both fruits	Orange skins are thicker while apples skins are thinner.
They both have seeds	Orange skins are easy to peel but that of apples are not easy to peel.
Both fruits are delicious	Oranges contain more acids than apples.

**Step III:**

The computer explains the steps used in comparing and contrasting e.g the computer explains that there are 6 steps for great compare and contrast.

- i. Carefully consider the two things or objects you are asked to write about. You cannot write a good compare and contrast exercise without first, reading what you have been assigned to, you have to read them carefully. It would probably help you to make notes as you read, marking things you consider important. This can give you a serious head start on your actual write-up when you sit-down to do it.
- ii. Making a list of the key similarities and differences in your texts once you have read everything you have to make a list of how those things or objects are similar and different to each other. Those notes you took in step one would be useful, depending on how organized your thoughts are
- iii. Isolate the most important points and turn them into your central argument once you are satisfied with your list you can now go back through and pick the points you feel are most importantly similar and

different. Here, you should be looking for the things that you think will lead to the most compelling essay you can write.

- iv. Write an outline that will form the skeleton of your essay:- your outline will break the flow of your write-up noting only the main points you want to cover this will also help in organizing your work in
- v. Fill in textual details to write essay mostly becomes a matter of supporting your points with evidence from the works you read.
- vi. Edit:- when you are done with the write-up make sure you give it one more pass, check for errors, bad grammar spelling before final submission

**Step IV:**

The computer explains to the students how to identify signal words in compare and contrast.

First what are signal words:- signal words are those words writers must use to connect their ideas, show a logical relationship between ideas and guide the reader in the direction that the writers want.

The following are examples of some signal words:-

<b>Compare / Similarity</b>	<b>Contrast / Difference</b>
Like	but
likewise	yet
in like manner	however
just as	still
equally	differ
alike	otherwise
similar	contrary

Let us take these sentences for example

1. I love drinking coffee. It keeps me awake at night.
2. I love drinking coffee even though it keeps me awake at night.

in sentence 1 it implies that the writer loves drinking coffee because it keeps her awake at night to add more specificity the signal word “even though” is used in sentence 2, to change the relationship between the sentences now the writer loves coffee in spite of it keeping her awake at night.

- Evaluation:
- i. Define, compare and contrast.
  - ii. List 2 steps in compare and contrast.
  - iii. Identify 3 signal words in compare and contrast.

Summary: The computer summarizes the lesson by going through the Lesson once more.

Conclusion: The computer concludes the lesson by giving the student a take home assignment.

### **ASSIGNMENT**

1. Bring out the similarities and differences in the following paragraph.
2. List 4 each of compare and contrast signal words.