EFFECT OF CRITICAL THINKING STRATEGIES ON READING COMPREHENSION PERFORMANCE OF SENIOR SECONDARY SCHOOL YEAR II STUDENTS IN MINNA METROPOLIS, NIGERIA.

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JANUARY, 2016

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BEING A RESEARCH DESSERTATION SUBMITTED TO SCHOOL OF POST GRADUATE STUDIES IN PARTIAL FULFILMENT FOR THE AWARD OF MASTERS DEGREE IN TEACHING ENGLISH AS A SECOND LANGUAGE.DEPARTMENT OF ARTS AND SOCIAL SCIENCE EDUCATION FACULTYOF EDUCATION AHMADU BELLO UNIVERSITY, ZARIA

SUPERVISORS: DR. SADIQ MUHAMMED
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JANUARY, 2016

DECLARATION

I hereby declare that the work in this thesis titled : Effects of Critical thinking strategies on Reading comprehension Performance of Senior secondary school year two students in Minna Metropolis, Nigeria; is a record of my personal work. It has never been presented anywhere for the purpose of award of higher degree. All quotations and sources of information are indented or acknowledged by means of references.

…… …….…… ……...
IMAM, Abubakar Ibrahim Signature Date

CERTIFICATION

This thesis entitled: EFFECT OF CRITICAL THINKING STRATEGIES ON READING COMPREHENSION PERFORMANCE OF SENIOR SECONDARY SCHOOLS YEAR TWO STUDENTS IN MINNA METROPOLIS, NIGERIA. By IMAM, Abubakar Ibrahim has been read and certified as meeting the Requirements governing the award of Master's degree in Teaching English as a Second Language (TESL), Department of Arts and Social Sciences of Ahmadu Bello University, Zaria, and is approved for its contribution to knowledge and Literary presentation

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DEDICATION

This work is dedicated to my late father, my thoughtful mother, wife, children and entire IMAM family. And also to the strategized readers and teachers in secondary schools who are trying hard to attain academic excellence through critical thinking.

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All praise and thanks giving belong to Allah (S.W.T) for His love, Mercy and Guidance. His peace and blessings be upon prophet Muhammad (SAW), Members of his household and the entire ummah. My profound gratitude and deep appreciation goes to my mentor and teacher, Professor Issac Adetunji Olaofe, who taught me to be thorough in all things. May the inestimable grace and wisdom of God continue to increase his life's endeavours. I highly appreciates my co-supervisors Dr. Sadiq Mohammed and Dr. Ramlatu Jibir Daura. They have through teaching and supervision taught me to be focused academically, spiritually and learn to always say I can to any emerging challenges. May you be gracefully rewarded for training me to train others. It becomes necessary to specially appreciate my Teachers Dr .Olatunji Adeniran and Mallam Sule Ndako. I am particularly grateful to the following lecturers of the Faculty of Art and Social Science Education, Mallam Umar Ginga and Mallam Awwal for their assistance and encouragement; May Allah reward you for your guidance.

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Abdurrahaman, Ummul-Qussum, Abidat and Saudat,. I value you all more than words can express.

ABSTRACT

The study explore the effect of Critical Thinking Strategies on reading comprehension performance of Senior secondary school year two students in Minna Metropolis (Nigeria).The Purpose of the study was to investigate; Effects of Critical Thinking Strategies on reading comprehension performance among senior secondary school students. The variables investigated were based on genders (male & female) and among students in the experimental groups. Four research questions were set and answered and four hypotheses were postulated and tested in the study. The experimental research design of equivalent and randomized pre-test, post-test of experimental and control groups was used. The study area has a population of 11,124 Senior Secondary year two students for 2014-2015 academic year. A sample size of 120 year two students was sampled according to sample size table published by Curry in Yount (2006). Thirty (30) students from four (4) schools out of the population were sampled through simple random and purposive sampling techniques. Two researcher-designed instruments were used; the Critical thinking Instructional Guide (CTIG) and Reading Comprehension Test (RCT).The treatment procedures include six reading comprehension passages and the critical thinking strategies lessons conducted for six weeks. The statistical tool used for data interpretation was the independent t- test, tested at 0.05% level. The findings indicated that, there was significant difference between the performance of male and female students exposed to Critical thinking instructional strategies and those not exposed to treatment. Furthermore, the findings revealed no significant difference between the reading comprehension performance of male and female students in the experimental groups exposed to critical thinking strategies and those not exposed. However, the effect of critical thinking strategy training did not vary among different genders in the experimental groups. In addition, the findings provide empirical support for the facilitative effect of think pair share method and reciprocal teaching method on reading comprehension performance. The study concludes that the teaching of reading comprehension can produce positive outcome if relevant and appropriate critical thinking strategies are used in the teaching/learning process. It was recommended that English Language teachers should employ the Reciprocal Teaching Method and Think-Pair-Share Method in instructing learners in order to enhance their reading performance. Also teacher trainers, textbook writers, curriculum developers should teach, write textbooks and develop English Language teaching materials adopting and adapting the findings in this study.

LIST OF ABBREVIATION

C.T.I.G.-Critical thinking instructional method

CIGT- Critical Thinking Instructional Guide

CIM- Conventional Instruction Method

CT- Critical Thinking

CTS- Critical thinking strategies

EFL- English as Foreign Language

ESL- English as second language

L1- First language

L2- Second language

NNS Non Native Speaker

NS - Native Speaker

PIRLS – Progress in International Literacy study

PISA- Programme of International Student Assessment

RCI- Reading Comprehension Instruction

RCT -Reading Comprehension Test

RTM- Reciprocal teaching method

S.S II- Senior Secondary School year two

SAIL- Students Achieving Independent Learning

SQ3R- Survey, Question Reading, Recall, Retain.

TPSM Think-Pair-Share Method

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DEFINITION OF OPERATIONAL TERMS

Approach: Planning, teaching and post-teaching activities for the orderly presentation of a particular language material in a lesson or a group of related lessons.

Cognitive abilities: Mental abilities, to solve problems, challenge issues, summarizes, paraphrase, justifies a procedure, present argument, evaluates, make judgments. It is also abilities to receive, recall, retain information and generalize facts from a reading text.

Cooperative Instructional Methods: A Successful teaching methods in which small teams ,each with students of different level of ability, varieties of learning activities for reading comprehension lesson. Critical thinking strategies as obtained through the use of methods of cooperative instruction. In the context of this study; Think Pair share Methods (TPSM) and Reciprocal Teaching (RTM) were used.

Critical thinking This is the ability to propose many different ideas, answer and possible solutions to questions raised in a reading comprehension passage/ text as against convergent thinking where answers are narrowed to a single answer.

Evaluative/Critical Comprehension: A level of comprehension where students read, understand and make a critique of the meaning of a text.

Inferential Comprehension: A level of comprehension where students read, interpret and understand the meaning that is not expressed in a text

Literal Comprehension: A level of comprehension where students read and understand the main facts of a text.

Method: An overall plan for the orderly presentation of a particular language or reading comprehension lesson

Performance: Reading comprehension scores after exposure to Reading Comprehension Test (RCT).

Reading Comprehension: The students' ability to read and interpret print a reading material or text. Reading is also a dynamic interaction between the writer, Reader and the context of reading.

Reciprocal Teaching Method (RTM): A method where students are divided into groups using four techniques in order to aid reading comprehension:

Strategies: The intentional actions facilitating teaching and learning of reading comprehension.

Technique: This is a step, activity or strategy adopted or adapted by the teacher in guiding and directing the experiences of students from one stage of the reading lesson to another.

Think-Pair-Share Method (TPSM): A method where students are divided into pairs using three techniques in order to aid reading comprehension

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CHAPTER ONE

INTRODUCTION

1.1 Background to the study.

Critical thinking is the ability to analyze, evaluate and judge information. Critical thinkers raise vital questions and problems, formulate them clearly, gather and assess relevant information, use abstract ideas, think open-mindedly, and communicate effectively with others. Passive thinkers suffer a limited and ego-centric view of the world. They answer questions with yes or no and view their perspective as the only sensible one and their facts as the only ones relevant. One of the most influential tools anyone can always have is the ability to think. Critical thinking skills are strategies people use to consider and evaluate new ideas. Reading is one of the ways people receive and consider new ideas. Richard Paul (2004) stresses the connection between critical thinking and reading comprehension. As he states, "The reflective mind improves its thinking by reflectively thinking about it. Likewise, it improves its reading by reflectively thinking about how it is reading.

Reading is a complex and long lasting process. It is a process of constructing meaning through the dynamic interaction of the reader, text, and the context of reading situation that results in the acquisition of knowledge, experience or information (Anderson and Pearson, 1984;) That means, readers extract meaning from the text and reconstruct it by combining information from text and their background comprehension knowledge. This definition reflects the idea that three factors are equally influential in the process of reading: writer, reader and text. Secondly, it implies that training in reading could be implemented most effectively with the *Comprehension* which is the main goal of reading .Thirdly, from a

psycholinguistic perspective, this comprehension is the end product of a rather complicated mental process in which the author encodes thought in the form of language (linguistic data) and the reader decodes language to outcomes.

Critical Thinking is a complex concept that involves cognitive skills and affective dispositions, and this has affected the way some teachers impart the concept to the students. Critical thinking requires one's effort to collect, interpret, analyze and evaluate information for the purpose of arriving at a reliable and valid conclusion. In applying critical thinking in school settings, it is necessary to develop thinking skills. People who think critically should be able to understand the logical connections between ideas, construct, evaluate arguments, detect common mistakes in reasoning and solve problems systematically.

Teaching reading in the secondary school has become a source of great concern among educators around the world as success in reading determines success in school. Research findings have revealed that this important language skill is highly neglected in many secondary schools. This has resulted in students' poor performance in reading comprehension of simple English passages. Thus the main inspiration for this research is to motivate both teachers and students towards critical thinking strategies in the teaching and learning reading comprehension among senior secondary school students in Minna Metropolis.

The secondary school English language classroom is a logical environment to explicitly teach, and practice, critical thinking through reading comprehension with the goal of developing lifelong habits of reading. As Mendelmen (2007) pointed out, If reading the word can be paralleled to reading text, then reading comprehension passage offers an

ideal vehicle for teaching the critical skills necessary in analysis and problem solving. Yu-hui et al. (2010) stated clearly that reading is a thinking process to construct meaning. Comprehension (itself) has been seen as a critical thinking process. Dewey (2003) stated that the central purpose of education is learning to think. The ability to think critically and reason well has been regarded as an important and necessary outcome of education. Similarly, as part of that education, learners need to develop and learn to apply critical thinking skills to their reading effectively.

Moreover, reading involves skills; it involves thinking and it affects the entire personality of an individual. A person's attitude towards school, parents and life in general may be affected by his/her reading ability. Thus, the reading process is a challenge to many students, as success in reading to a large extent determines success in school and academic achviement (Lawal,1989) Reading comprehension instruction in making judgments about the credibility of source/writer information, distinguishing fact from opinion, detecting emotionally laden words, establishing evaluation before making judgments, in a passage are some of the reading strategies used in this study. These skills listed can assist in the accomplishment of the purpose for reading comprehension.

Critical thinking strategies are not extensively developed or practiced by many primary and secondary schools in Nigeria Abe, (1999) is of the view that; critical thinking strategies are not extensively developed or practiced by many primary and secondary schools in Nigeria. Although the National Policy on Education (2004) has specifically stated that;

> The Primary schools should lay the foundations for critical thinking by instilling reflective thinking and ability to adapt to changing environment. At the secondary school level, students are expected to demonstrate critical thinking by imbibing independent thinking and cope with modernity. (NPE,2004)

It is expected that proper implementation of these objectives will put all educated Nigerians at par with their counterparts all over the world. Thus critical thinking skills are suppose to be developed and made functional in all school subjects in the Nigeria national curriculum. Comprehension is the ultimate reason for any reading effort. If learners can read the words of a text but do not understand what they are reading, they are not really reading. Lawal (1990) has identified four main hierarchical levels of reading comprehension, they are: literal, inferential, evaluative and creative levels. The literal level is the level of understanding the actual or factual meaning of a text. This level has been described as the lowest level of reading comprehension where the reader recognizes, identifies and recalls the main gist and the relevant ideas in a text. The inferential level is the level where learners read to understand the meaning that is not expressed in a text; the reader interprets and tries to infer the meaning from the passage. The critical or evaluative level of comprehension is a higher level of comprehension where learners read beyond the lines to get meaning from printed texts. Here, the reader makes a critique of the meanings and approaches employed by the author using various skills.

Research has shown that instruction in comprehension can help students understand what they read, remember what they read and communicate with others about what they read. Probably this informed the prominent place of reading comprehension in the Nigerian school curriculum. Nevertheless, the accomplishment of the purpose for which reading comprehension was entrenched in the school system would depend, to a large extent, on

the caliber of teachers who handle English language. This is in line with the position of the Federal Government that no educational system can go beyond the quality of its teachers. In other words, teachers determine, to a large extent, what happens in the classroom including reading comprehension lesson. Thus, this informed the investigator's search for instructional methods that could facilitate the teaching of reading comprehension in schools. The Instructional Methods used in this work are Think-Pair-Share(TPSM) and Reciprocal Teaching (RTM). Think-Pair- Share is a cooperative discussion method developed by Lyman (1981) and his colleagues in Maryland. It got its name from the three stages of students' action, with emphasis on what students are to be doing at each of those stages. Reciprocal Teaching is the creation of Palinscar (1984) and Brown (1986)

In another vein, traditional beliefs and stereotypes have suggested that men are superior at analytical thinking, so are better critical thinkers than women. Scientifically speaking, however, the issue of gender differences in critical thinking and in reading comprehension has remained an area of controversy among researchers. Some studies reject gender differences on critical thinking measures and others are in favor of their influential role of gender differences in critical thinking skill. Literatures search reveal that studies on the effect of critical thinking skills have received little or no attention in Nigeria (Abe,1983,Oyetunde,2009,Umaru,1989, cited in Yusuf, 2010).

It is a daunting task to separate the effect of critical thinking strategies on reading comprehension performance from the effects of other factors that influence teaching and learning. Results and conclusions in this study are considered in the context of independent set of variables in which the uses of critical thinking strategies and critical reading strategies are embedded. There have been studies done over the last decade on the

relationship between reading comprehension ability and the use of reading strategies; however, few studies have dealt with the role of critical thinking in teaching reading comprehension among genders. It seems that the role of critical thinking ability as a process of problem in solving and decision making among genders has been ignored in the process of reading these years. Therefore this study sought to fill the gap and find out whether critical thinking strategies improves reading performance among senior secondary school students according to gender in Minna Metropolis, Nigeria.

1.2 Statement of the Problem

Critical thinking and critical reading strategies are the very heart of reading comprehension. When students read materials critically, they are more motivated and more likely to use other active processes that lead to effective comprehension. Unfortunately, critical thinking strategies are not consistently taught in secondary schools in Minna Metropolis. This problem translates to a populace that is ill-equipped to challenges of critical thinking. The more children grow up engaged with primarily passive reading activities, teaching critical reading is one of the most important and most difficult burdens of the classroom teachers. If students are not exposed to critical reading skills, they will be unable to read with comprehension.

The problem appears to be with our educational system, as well as teachers. The Nigerian education system has failed to develop an efficient literacy programme especially for secondary schools. Studies conducted reveal that most secondary school leavers are either illiterates or semi- literates (Oyetunde,2011). This is evident that students cannot cope with the reading demands of the national curriculum. In the same vein, most secondary school teachers are persistent on the use of traditional methods of teaching which stress "what to

think, rather than how to think. Consequently, many students perceive reading and education in general to consist of cramming the night before a test, instead of inquisitively examining a concept and attempting to synthesize it into their own lives. Cramming and critical thinking are vastly different skills, in a class that consists mainly of lectures with periodic quizzes and examinations, students can often get a passing grade by cramming 'the night before quizzes and tests."

The issue of gender difference in critical thinking skills and reading comprehension has remain controversial among researchers the world over. It is common to assume that men are superior at analytical thinking, so are better critical thinkers. Scientifically speaking, however, the issue of gender differences in critical thinking (CT) has remained an area of controversy among researchers. Some studies reject gender differences on CT measures and some are in favour of the influential role of gender differences in CT skill. Many, students tend to be unaware of the components of the thinking skills in which they need to be more proficient. Yet, it is the knowledge of these skill components and proficiency in applying them that lead to skillful thinking.

1.3 The Objectives of the Study

Specifically, the following objectives are set to:

1. Investigate the effect of critical thinking strategies on the reading comprehension performance among Senior Secondary School Students in making judgment about credibility of source of information/writer in Minna Metropolis.
2. Examine the effect of critical thinking strategies on the reading comprehension performance of male senior secondary school students in distinguishing fact from opinion in Minna Metropolis.

3. Find the effect of critical thinking strategies on reading comprehension performance of female senior secondary school students in Detecting emotionally Laden word in Minna Metropolis
4. Examine the effect of critical thinking strategies on reading comprehension Performance among genders (male & female) of senior secondary school students in establishing evaluation criteria before making judgments in Minna Metropolis

1.4 Research Question

This study sets out to find:

1. What is the effect of Critical thinking strategies on reading comprehension performance among Senior Secondary School (S.S II) students taught making value judgments about credibility of source of information/writer and those taught through traditional method in Minna Metropolis?
2. How does the effect of Critical thinking strategies on reading Comprehension Performance of Male S.S II student taught Distinguishing fact from opinion differ from those not taught?
3. How does the effect of critical thinking strategies on reading comprehension performance of Female S.S II students taught detecting emotionally laden words differ from those not taught in Minna Metropolis?
4. What is the effect of Critical Thinking Strategies on Reading Comprehension Performance between male and female S.S II students taught Establishing Evaluation criteria before making judgments in Minna Metropolis?

1.5 Research Hypotheses

Ho1 There is no significant difference between the reading comprehension performances among senior secondary school students taught critical thinking Strategies in making judgments about the credibility of source or writer and those not taught.

Ho2 There is no significant differences between the reading comprehension performances of male secondary students exposed to critical thinking strategies Distinguishing fact from opinion and those not exposed.

Ho3. There is no significant difference between the reading comprehension performances of female senior secondary students exposed to critical thinking strategies in Detecting emotionally laden words and those not exposed

Ho4. There is no significant difference between the reading comprehension performances among genders (male and female) of senior secondary school students exposed Critical Thinking Strategies in establishing evaluation criteria and those not exposed

1.6 Significance of the Study

This study is particularly significant to the secondary school students and teachers of reading instruction in public and private schools, as well as teachers training institutions, teachers of reading instruction in both public and private schools. The study enhances will the efficacy of their teaching using critical thinking strategies in reading. It is hoped that the findings of this research would help to improve the teaching and learning of reading comprehension using critical thinking strategies in several ways.

The study could also engender a gradual attempt of naturalizing the learning process in reading comprehension. Students with this process will imbibe the habit of making

inferences, decision making and proper evaluation not only during reading comprehension lessons but in all aspects of academic life endeavors. The more students are engaged in critical thinking, the more the development of their reasoning, inference, decision and evaluation process develops. This is expected to reduce the dullness of classrooms during reading comprehension lessons, as learning would be geared towards learning how to think critically and creatively. Results from this study could help students to be able to effectively articulate and recall information; sharpen their listening faculty and speech skills. The low ability learners could also benefit from the findings of this study as they find how to interact with high performance learners through the cooperative methods of teaching used in the study. This could also enhance the problem solving skills of students.

Teachers too could benefit from the findings in that they will make their classroom activities more learner-centered as against teacher-dominated activities popularly used in reading comprehension lessons. This can be achieved if textbook writers incorporate these methods into reading texts. Similarly, teacher trainers like universities and colleges of education would see the need to re-orientate teachers in training on the skills for successful implementation of critical thinking strategies.

Although vast literature exist within and outside Nigeria on critical thinking strategies, cooperative and individualistic methods on students learning outcomes, none or probably a few relates critical thinking strategies with comparative effects of Think-Pair-Share and Reciprocal Teaching methods exist to the best knowledge of the researcher's in Nigeria. Thus, this study could serve as reference source for researchers in the related aspects of English language teaching.

In addition, textbook writers could equally benefit from the findings, in that group activity and activities in pairs could be incorporated into major reading topics for use in schools. Through the findings of this study, educators, federal and state ministries of education and other stakeholders would organize conferences and workshops for teachers where they can learn innovative techniques and methods for teaching reading comprehension.

Furthermore, the study could be quiet significant to the secondary school English language curriculum developers and researchers in critical thinking skills. The study would provide data on how students read fluently, accurately and effectively applying critical thinking skills to their academic studies. Similarly, the findings in this research could be of immense benefit to policy makers and educational Administrators, as it will help to review our present educational policy and curriculum with the aim of introducing critical thinking strategies as one of the core component of teaching reading comprehension skills in English language lessons.

1.7 Contributions of the Study to Knowledge

Systematic implementation and practice of critical thinking strategies will help secondary school students develop habits of mind that would allow them to view the world through a critical scope. Repeated student exposure to critical thinking practices will assist students in all academic disciplines, as well as translate to life beyond secondary school.

1.8 The Scope of the Study

The scope of this study is the public Senior Secondary School year two (SS.II) students of Minna Metropolis. The variables considered are the role of gender in critical thinking abilities and reading comprehension performance. Critical thinking strategies are many and at different levels. This study relates the critical thinking skills as it affects reading comprehension performance among genders of students. The sample for the study was 120 students from four (4) schools situated in within Minna Metropolis.

Various studies have been carried out on pre-instructional strategies (Jiboku 1991, Adegbile 1999, Adebileje 2001 and Lawal 2005) with emphasis on techniques to be employed at the beginning of reading comprehension lessons. This researcher focused this study on techniques employed before, during and after reading comprehension lessons. The first three of the four hierarchical levels of reading comprehension as identified by Lawal (1990) which are the literal, inferential and critical or evaluative levels were examined in this study. Two instruments were used in the study. Reading Comprehension Test (RCT) and Critical Thinking Instructional Guides(CTIG) were the instruments used. Independent t- test was used to test the four null hypotheses generated.

CHAPTER TWO
REVIEW OF RELATED LITERATURE

2.01 Introduction

The chapter presents scholarly reviews of related studies on critical thinking strategies and reading comprehension performance. The review situates the concept of critical thinking strategies under the following subheadings; (a) Conceptual framework(b), Defining. (c)The concept of Critical Thinking,(d) Why Critical thinking. (e) Critical thinking and reading comprehension. Thereafter, It examines other issues such as: Relationship between Critical thinking and reading comprehension performance, The role of gender differences in Critical thinking, Critical thinking and Socio-cultural context, Critical thinking focus, Critical thinking assessment. Generally the review shows how research has informed the current study within the broader field of Critical thinking strategies and Reading comprehension.

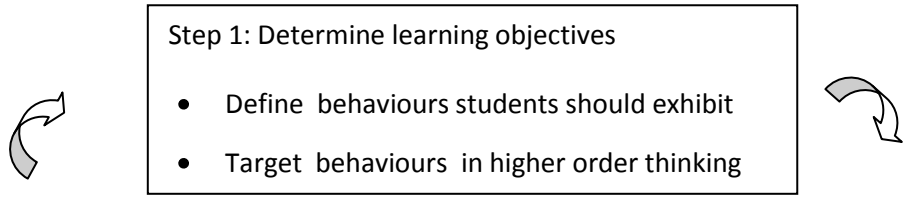
2.02 Conceptual Framework

Critical thinking involves asking questions, defining a problem, examining evidence, analyzing assumptions and biases, avoiding emotional reasoning, avoiding oversimplification, considering other interpretations, and tolerating ambiguity. Critical thinking skill is exemplified by asking *questions* about *alternative possibilities* in order to reliably achieve some *objective*. Asking and answering questions is also a skill of reading comprehension. The study adopted the theory of Blooms (1956) taxonomy which identifies six levels of development and the Learner-centered approach to teaching, based on three assumptions about thinking and learning. In each of Bloom's three taxonomies (cognitive, affective, and psychomotor), lower levels provide a base for higher levels of learning (Bloom, 1956, Kauchak & Eggen, 1998). Comprehension and application form linkages to higher order skills;. Higher order thinking involves breaking down complex material into parts, detecting relationships, combining new and familiar information creatively within

limits set by the context, and combining and using all previous levels in evaluating or making judgments.

This study identifies 5-step framework model that can be implemented in teaching students critical thinking skills and reading comprehension effectively. The theory of this framework began primarily with the works of Bloom (1956), who identified six levels within the cognitive domain, each of which related to a different level of cognitive ability. Those cognitive abilities include*: **Knowledge***; which focused on remembering and reciting information. **Comprehension** focused on relating and organizing previously learned information***;. Application*** focused on applying information according to a rule or principle in a specific situation; **Analysis f**ocused on parts and their functionality in the whole.; **Synthesis** focused on putting parts together to form a new and original whole. **Evaluation** *with* focus on value and making judgments based on information (Albrecht & Sack, 2005). In the context of this research, critical thinking is deemed to engage students in the upper levels of Bloom's taxonomy through reading comprehension where critical thinking takes place and to provide the greatest benefit and opportunities to students and teachers. . Figure 1 presents 5-step model to help students gain critical thinking skills. (adopted & adapted from Robert Duron & Barbara 2006)

Figure 1 5-Step Model to Move Students Toward Critical Thinking(adopted from Robert Duron&Barbara, 2006)



(Adopted from Robert Duron & Barbara, 2006)

Step 1. Determine learning objectives. To make critical thinking happen, these learning objectives, as well as the activities and assessments, must include those tied to the higher levels of Bloom's (1956) taxonomy. Comprehension requires an answer that demonstrates an understanding of the information. Questions at this level might ask students to summarize, explain, paraphrase, compare, and contrast. Application requires an answer that demonstrates an ability to use information, concepts and theories in new situations. Analysis requires an answer that demonstrates an ability to see patterns and classify information, concepts, and theories into component parts. Questions at this level could ask students to examine, classify, categorize, differentiate, and analyze. Synthesis requires an answer that demonstrates an ability to relate knowledge from several areas to create new or

original work. Questions at this level might ask students to combine, construct, create, and role-play. Finally, Evaluation requires an answer that demonstrates ability to judge evidence based on reasoned argument. Questions at this level may ask students to assess, criticize, recommend, predict, and evaluate. Thus, a well-written lesson plan should target a specific behavior, introduce and allow for practice of the desired behavior, and end with the learner exhibition of the behavioral response. The development of a well-written questions will greatly accelerate student' movement to critical thinking.

Step 2: Teach through questioning. Questioning is a vital part of the teaching and learning process. It allows the teacher to establish what is already known and then to extend beyond that to develop new ideas and understandings. Questions can be used to stimulate interaction between teacher and learner and to challenge the learner to defend his or her position, (i.e., to think critically). Clasen and Bonk (1990) posited that although there are many strategies that can impact student thinking, it is teacher questions that have the greatest impact. Elder and Paul (1997) proposed that the art of questioning is essential to the art of learning and that, to the extent that if they fail to ask genuine questions and seek answers to those questions, students are not likely taking the content seriously

Step 3: Practice before you assess. To make learning more active, we need to learn how to enhance the overall learning experience by adding some kind of experiential learning and opportunities for reflective dialogue. One very important ingredient of active learning is in-depth reflective dialogue. One can reflect with oneself, as in a class discussion. According to Fink (2003), in reflective writing, students should address the following questions: What am I learning? What is the value of what I am learning? How am I learning? What else do I need to learn?

Step 4: Review, refine, and improve. To accomplish this, teachers should monitor the classroom activities very closely. To track student participation, a teaching diary can be kept that identifies the students that participated, describes the main class activities, and provides an assessment of their success. Other reflective comments can also be tracked when revising or updating instructional activities. Student feedback is also an important tool to be used in the improvement of a course. Angelo and Cross (1993) suggested numerous methods for collecting key information related to student learning and response to instructional techniques. Discussing the patterns of responses with the students can lead to better teaching and learning.

Step 5: The purpose of feedbacks is to enhance the quality of student learning and performance, rather than to grade the performance, and, importantly, it has the potential to help students learn how to assess their own performance in the future. Feedback allows the teacher and student(s) to engage in dialogue about what distinguishes successful performance from unsuccessful performance as they discuss criteria and standards (Fink, 2003).Teachers should provide good feedback to their students through frequent opportunities to practice whatever they are expected to do at assessment time. Teachers should spend ample time helping students to understand what the criteria and standards are and what they mean. Student peers may also provide feedback and evaluation. Each of these techniques help students learn to distinguish between satisfactory and unsatisfactory performance

Another theory that supports this study is the social interaction theory. This theory was the brain child of Lee Semenovich Vyg ' (1978). Vygotsky believed that social interaction, cultural tools, and activity shape individual development and learning. By

participating in a broad range of activities with others, learners appropriate (internalize or take for themselves) the outcomes produced by working together, they acquire new strategies and knowledge of the world and culture. Vygotsky's concept of the zone of proximal development, which is where a child can solve a problem with the help (scaffolding) of an adult or more able peer is very relevant. Vygotsky asserted that human activities take place in cultural settings and cannot be understood apart from these settings. One of his key ideas was that our specific mental structures and processes can be traced to our interactions with others. According to Bodrova and Leong (1996) cited in Machado (1999) a teacher using a Vygotsky approach with younger and older children :

- make her actions and the children's actions verbally explicit
- model thinking and strategies aloud
- when introducing a new concept, be sure to tie it to actions
- use thinking while talking to check children's understanding of concepts and strategies.

The good features of learner-centred classrooms are that children enjoy themselves as they work together on their own or in groups. No one is bored as there are buzz of activities. They are encouraged to think for themselves in various ways. Children learn how to get on with one another, how to control their emotions, how to act as leaders and make decisions. The atmosphere is relaxed and friendly. In addition, Dewey believes that education is essentially a "social process" in which the teacher loses the position of external boss or dictator and takes on that of a leader or facilitator of group of activities. Consequently, the learner-centred approach tries to:

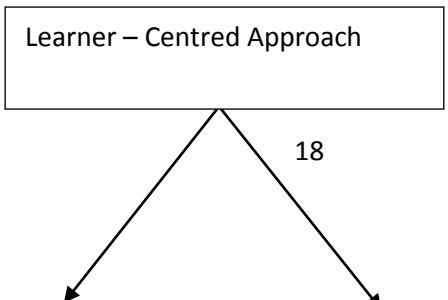
- acknowledge that children's needs should determine what they learn at school,

- recognize and respond to the changing characteristics that distinguish children of different ages,
- train children in skills that are within the capabilities of their stage of development,
- select what is taught and the methods used so that they are appropriate to the comprehension and experience of children.
- Utilize the strong motivational forces that control so much of children's natural learning.

The Critical thinking strategies used in the study is through Think-Pair-Phare method (TPSM) & Reciprocal Teaching Method (RTM). The method involves students working in groups 'to master reading material.

It equally entails the use of discussion as a teaching method in which teachers and students share ideas, and compare and contrast views on a given problem. The discussion can be teacher-led or student-led with teacher's guidance. It is against this background that the learner-centered approach used is presented diagrammatically as follows:

Figure 1. 2: A model of Learner-Centered approach with Think-Pair-Share and Reciprocal Teaching Methods,



(Adopted from Ofodu, 2011)

The first stage of this technique is thinking. The teacher provokes students thinking with a question or prompt or observation while the students take a few moments to think about the question. The second stage is pairing. Using designated partners, students are Paired to talk about the answer each came up with. They compare their mental or written notes and identify the answers they think are best, most convincing, or most unique. The third stage is sharing. After students talk in pairs for a few moments, the teacher calls for pairs to share their thinking with the rest of the class. He/she can do this by going round in around-robin fashion, calling on each pair; or he can take answers as they are called out (hands are raised). Reciprocal Teaching uses four comprehension techniques namely: summarizing, questioning, clarifying and predicting. Reciprocal Teaching is designed to help students understand and think deeply about what they read. Students are taught to question, clarify, summarize and predict in a cooperative group context.

A student working in a small group reads aloud a brief passage of text and immediately generates a question. This strategic use of questioning requires the student to make sense of the text, processing information automatically. After several questions have been answered by the other members of the group, the student attempts to clarify any difficult words or phrases from the reading selection. Clarifying encourages the development of self-monitoring, an essential component of independent reading. The student then generates a summary, a task that entails identifying the main ideas in a reading selection and constructing a clear, concise description of what has been read. Finally, the student predicts what is likely to occur next and provides evidence from the text to support the prediction.

2.03 Defining the Concept of Critical Thinking

Critical thinking is a rich concept that has been in existence for the past 2500 years. Halvorsen (2005:5) defines critical thinking as "thinking critically about an issue, to consider that issue from various perspectives, to look at and challenge any possible assumption that may underlie the issue and to explore its possible alternative."Critical thinking approach to learning has been applied 2000 years ago for the first time by Socrates who was interested in carefully questioning peoples' claims, seeking evidence and reasons and analyzing concepts to figure out what to believe. John Dewey, the American philosopher, psychologist and educator defines critical thinking as "the kind of thinking that consists in turning a subject over in the mind and giving it serious consecutive considerations" (cited in Reed 1998,p. 112).

Generally there are lacks of consensus on how critical thinking is best defined. According to Reed (1998), the broad concept of critical thinking has brought about

different definitions and terminologies by scholars. He says the lack of consensus on the definition of critical thinking and also its terminology has rested in the grounding of various theories and models in two distinct disciplines of Philosophy and Psychology. Philosophy has tended to focus on the nature and products of critical thinking, while psychologists have concentrated on the process of cognition, and the conclusion in empirical research. On the other hand, some educators have drawn on both psychology and philosophy to develop a rigorous theory of critical thinking for teaching.

Some scholars use "critical thinking" and "higher order thinking" interchangeably (Halpern, 1993), others make a sharp distinction (Facione, 1990). The relationship among "critical thinking," "higher order thinking," "thinking skills" and other terms such as "informal logic," "informal reasoning," "problem solving," "argumentation," "critical reflection," "reflective judgment," and "metacognition" have further complicated the issue. Other areas of disagreement and concern include (a) the extent to which critical thinking is subject specific, (b) differences between expert and novice thinking in a discipline and the extent to which novices can learn to think more like experts, (c) difficulties in separating higher order and lower order thinking skills for instructional purposes, and (d) whether critical thinking should be considered a process or a set of skills (Beyer, 1985; Facione, 1984; R. H. Johnson, 1996; Perkins, Faraday, & Bushey, 1991; Resnick, 1987).

Inaddition, a number of scholars have attempted to impose order on this "conceptual swamp" (Cuban, 1984, p. 686), no one has yet come up with a definition or theory that is accepted as definitive . One of the major stumbling blocks to consensus has rested in the grounding of various theories and models in two distinct disciplines relevant to this study: philosophy and psychology.

2.03.1 Philosophy-based, theories and definitions of Critical Thinking.

Critical thinking has been associated with philosophy since the time of Socrates. Its centrality in the current educational reform movement has been closely connected with the rise of informal logic as a separate specialization within the discipline of philosophy Richard Paul (1993), a philosopher whose work has been widely cited by scholars using both philosophical and cognitive approaches to critical thinking. Paul has insisted that critical thinking can be defined in a number of different ways that should not be seen as mutually exclusive. Among his various definitions of critical thinking are "thinking about your thinking while you're thinking to make your thinking better" (Paul, 1993, :91), and unique kind of purposeful thinking in which the thinker systematically and habitually imposes criteria and intellectual standards upon the thinking, taking charge of the construction of thinking, guiding the construction of the thinking according to the standards, assessing the effectiveness of the thinking according to the purpose, the criteria, and the standards. (Paul, 1993, p. 21)

These definitions emphasize the meta cognitive aspect of critical thinking, independent thinking, and the importance of learning to assess thinking Various theories of critical thinking certainly differ in important points, but they also reveal common concerns (Ennis, 1987; Lipman, 1988; McPeck, 1981; Paul, 1993; Siegel, 1988). R. H. Johnson (1996) notes their resemblances: a reflective skeptical or questioning attitude, a sensitivity to value- or ideology-laden assumptions, an insistence on appropriate supporting grounds before accepting disputable claims, an appreciation of the various criteria applicable to good reasoning and argument (whether general or subject dependent), skill and judgment in the

analysis and evaluation of claims and arguments, and a disposition to be self-reflective, sensitive to one's own possible biases or assumptions. (p. 46)

Johnson's analysis reflects an emphasis in philosophy-based approaches to critical thinking on intellectual theories and skills taught by informal logic, but it also notes philosophers' concern for affective propensities to exercise those skill. Resnick (1987) has summarized the nature of the philosophical contribution to thinking skills as promoting *disciplined* thinking, a means of guarding humans against their natural tendencies toward ego- or ethno centric thinking, toward accepting fallacies, and toward drawing inappropriate conclusions because it is less troublesome than the work involved in thinking through alternatives

2.03.2 Psychology-Based, Theories and Definitions of Critical Thinking.

In contrast to philosophers, psychologists have drawn their ideas about critical thinking largely from researching cognitive and developmental psychology and theories of intelligence (Bransford, Sherwood, & Sturdevant, 1987; Halpern, 1996; Sternberg, 1987). Cognitive and developmental psychologists have been more likely to connect critical thinking with problem solving than philosophers have been, considering critical thinking and problem solving as equivalent terms or one as a subset of the other. Halpern (1996), for example, has defined critical thinking as "thinking that is purposeful, reasoned, and goal directed. It is the kind of thinking involved in solving problems, formulating inferences, calculating likelihoods, and making decisions" (p. 5). While Halpern does use the term critical thinking, most cognitive-based theorists have preferred to use "thinking skills" (or, more narrowly, higher order thinking skills) rather than critical thinking as a generic term for the movement (Lewis & Smith, 1993; Sternberg, 1987).

Some educators and psychologists deal with critical thinking as a narrow concept, whereas others view critical thinking as a broad concept. For example, Beyer (1987) defined critical thinking in a narrow sense as convergent thinking. He state clearly that ‘‘critical thinking is convergent’’ (p. 35), in contrast to creative thinking which is divergent. Beyer (1985) has argued that ‘‘critical thinking is not a process at least not in the sense that problem solving or decision-making are processes; that is, critical thinking is not a unified operation consisting of a number of operations through which one proceeds in sequence’’ (p.303).Mcpeck (1981) has offered this broad definition for critical thinking, ‘‘The propensity and skill to engage in an activity with reflective skepticism’’ (p. 8). Ennis (1993) criticizes Mcpeck’s definition because it focuses on ‘‘reflective skepticism, ‘and according to Ennis, ‘‘critical thinking must get beyond skepticism’’ (p. 180). Ennis (1962) has dealt with critical thinking with a narrow sense. He stated that critical thinking is ‘‘the correct assessing of statements’’ (p. 6) .

However, Ennis (1985) has replaced his narrower definition with the broader one which viewed critical thinking as ‘‘reasonable, reflective thinking that is focused on deciding what to believe or do’’ (p. 46). Bloom (1956) and associates’ classification of educational objectives for the cognitive domain has continued to serve as a foundation for some psychology-based classification systems and thinking skills programs (B.E. Johnson, 1994), more recent cognitive research has provided a rapidly expanding knowledge base for richer and more diverse models for critical thinking. In the early 1980s, this area of cognitive research focused on problem solving in well-structured domains. (Chi, Feltovich, & Glaser,1981).

The Delphi Report(1990) identified critical thinking as "one among a family of closely related forms of higher-order thinking, along with, for example, problem solving, decision making, and creative thinking" (Facione, 1990, p. 13). Facione, the organizing participant, has pointed out that these terms overlap conceptually and complexly, and the relationships among them have yet to be satisfactorily examined. The experts' consensus statement on critical thinking follows:

> We understand critical thinking to be purposeful, self-regulatory judgment which results in interpretation, analysis, evaluation, and inference, as well as explanation of the evidential, conceptual, methodological, criterio-logical, or contextual considerations upon which that judgment is based (Facione, 1990 :20).

Critical thinking is essential as a tool of inquiry, as such; critical thinking is a liberating force in education and a powerful resource in one's personal and civic life. While not synonymous with good thinking, critical thinking is a pervasive and self-rectifying human phenomenon. The ideal critical thinker is habitually inquisitive, well-informed, trustful of reason, open-minded, flexible, fair-minded in evaluation, honest in facing personal biases, prudent in making judgments, willing to reconsider, clear about issues, orderly in complex matters, diligent in seeking relevant information, reasonable in the selection of criteria, focused in inquiry, and persistent in seeking results which are as precise as the subject and the circumstances of inquiry permit. Thus, educating good critical thinkers means working toward this ideal. It combines developing critical thinking skills with nurturing those dispositions which consistently yield useful insights and which are the basis of a rational and democratic society. (Facione, 1990)

This statement includes skills in both cognitive and affective domains. Core cognitive skills are interpretation, analysis, evaluation, inference, explanation, and self-regulation.

Affective dispositions are included in the statement above and are discussed extensively in the report. Thus the Delphi experts were able to reach consensus on a broadly inclusive definition of critical thinking that included both cognitive skills and affective dispositions, but they remained deeply divided on the issues of whether or not critical thinking includes a normative dimension, as Paul has insisted in his analysis.

Like the Delphi experts, many other scholars have viewed higher order thinking as an umbrella term that includes critical thinking, problem solving, and decision making. While related to and sharing overlapping skills critical thinking focuses on analysis, evaluation, inference, explanation, and self-regulation. It also includes affective dispositions. The Delphi consensus statement is used as the definition of critical thinking in this study, with the addition of the intellectual standards recognized by Paul (Foundation for Critical Thinking, 1996). From the above it could be asserted there are five key ideas relevant to this study: are:.

1 .Practical,

.2.Reflective

3. Reasonable,

4. Beliefs,

5. Actions.

The points listed are relevant to this study and they combine into the following working definition: Critical thinking is reasonable reflective thinking that is focused on deciding what to believe or do. Note that this definition does not exclude creative thinking, formulating hypotheses, alternative ways of viewing a problem, questions, possible solutions, and plans for investigating something are creative acts that come under this

definition. The viewpoints above have direct bearing to the investigative nature of this study hence the adoption of the authors reviewed above. on concept of critical thinking.

Furthermore, critical thinking ability is not something inborn; so it can be taught to the learners (Schafersman, 1991). It is a skill that can be improved and boosted by practice Wood, (2002).In simpler terms, Paul and Elder, (1993) assert that critical thinking involves first discovering the who, what, when, and how of things. They redefine critical thinking as "self-directed, self-discipline, self-monitored and self-corrective." Thinking about thinking, or mindful thinking about ideas, is a necessary component of critical thinking. This complex definition suggests that the practice of critical thinking is not entered into with ease. The definition which tends to be operational and widely used is that contained in the draft statement of the American National Council for Excellence in Critical Thinking Instruction cites in Witteen and Binker (1993):

The intellectual disciplined process of actively and skill conceptualizing.

Applying, analyzing synthesizing, or evaluating information gathered

From generated by observation, experience, reflection, reasoning, or communicates a guide to belief and action (p.68).

Two principles that appear fundamental to critical thinking in the views expressed are:

- The quality of thinking of any people affects the quality of their lives, since thinking affects belief and action.
- It is possible for people to team to improve the quality of their thinking.
- From the views of authors above this study adopt and concludes that: since critical thinking affects belief and action then it is possible to access Critical thinking through reading comprehension.

2.04 Why Critical Thinking ?

It is absolutely imperative that as young adults earn secondary school certificate and move onto the tertiary institutions and the world of work, they should be equipped with the critical thinking skills that are essential for higher academic pursuits and to navigating a global society. Secondary-level educators are an essential part of critical thinking development. Secondary schools need to be a place that involves students in rich, authentic, collaborative work; that takes responsibility for building 21st century skills that uses a diverse program of assessment to document students 'growth in such skills (Coughlin, 2010, p. 52). Schools are faced with the challenge of redesign in an effort to create an environment where students build critical thinking skill that ensures success in a competitive world. Without redesign of curriculum secondary schools run the risk of becoming irrelevant. These skills include broad concepts such as creativity, innovation, problem solving, communication, collaboration, teamwork, and critical thinking… (Senechal, 2010, P.5) These skills can be explore and taught effectively through reading comprehension through critical thinking strategies.

Thus it can be asserted that the ability to analyze and creatively adapt to new situations is at the heart of critical thinking. Paul and Elder (2008a) also stated that critical thinking ―provides a vehicle for educating the mind‖ (p.88). Within the six short years of junior and senior secondary school education, it is impossible to explore and analyze, in a classroom setting, every eventuality students might encounter in life; in other words, we can't teach students *what* to think. We can, however, teach them *how* to think.

Exploration of reading comprehension and Literature texts provides a format for discussing life's most confounding and intriguing themes; students are able to discuss and

debate moral and ethical dilemmas, learning from and with each other. In fact, to be productive members of society, young people need to demonstrate the ability to think critically when they read and as they communicate, both in written format and orally. What better place exists to develop the habits of mind that result in deep, insightful critical thinking than the reading comprehension lessons in English language classrooms.

2.05 Critical thinking and reading comprehension

The relationship between critical thinking and reading is well established in the literature. For example, Norris and Phillips (1987) point out that reading is more than just saying what is on the page; it is thinking. Moreover, Beck (1989) asserts "there is no reading without reasoning" (p. 677). Also, among those researchers and theoreticians who recognize that reading involves thinking is Ruggiero (1984). He indicates that reading is reasoning. Yu-hui et al. (2010) stated clearly that reading is a thinking process to construct meaning. Comprehension itself has been seen as a critical thinking process. For instance, from a schema theory description of reading, comprehension can be conceptualized as a critical thinking act (Anderson and Pearson, 1984, Collins et al., 1980, Norris and Phillips, 1987, Rumelhart, 1980 and Aloaili, 2005d). Lewis (1991) argues that viewing reading as a critical thinking act becomes more tenable when some of the components of the reading process are accepted as automatic and necessary (automatic processes like word identification, derivation of meaning for most words, and assignment of importance), but not sufficient for constructing text understanding.

According to schema theory, the understanding and interpretation of the text is relative, which means that definitive conclusions cannot be reached. However, the readers

should seek to arrive at a coherent and consistent understanding of the text being read. Schema theory posits that there is no absolute meaning on the page to be interpreted the same by all-that is, there is no "correct" comprehension. The goal of reading text is to arrive at a coherent representation of the text. This goal is achieved by readers' weighing and comparing data from their schemata, the text, and the context in which the act occurs. In order to enhance readers' ability to achieve and practice comprehension as a critical thinking act, researchers have shown that "the critical thinker uses his or her meta cognitive knowledge and applies meta cognitive strategies in a plain, purposeful way throughout the critical thinking process" (French and Rhoder, 1992, p. 191).

Gallo, (1987) uses meta cognitive strategies to develop critical thinking. She suggests that improved critical thinking requires developing the processes of observation, analysis, inference, and evaluation. Broek and Kremer (2000) made connections between inference-making and critical thinking to promote reading comprehension. They presented the idea that inferential and reasoning skills are closely related to other readers' characteristics and skills that affect text comprehension. Ennis (1987) classified inference as critical thinking ability which includes three somewhat overlapping and interdependent kinds of inference: deductive inference, inductive inference, and inference to value judgments.

Similarly, on the connection between critical thinking and reading comprehension, Albrecht's (1980), deduction is referred to as "top-down thinking" because the conclusion or result is known and the search is for specific evidence that led to that particular conclusion. However, Clarke, (1990) pointed out that induction is often called "bottom-up thinking" because conclusions are drawn from specific instances, such as building on

another unit the conclusion is reached. Ennis presented sub skills or abilities under each of these three kinds of inference: deductive inference, inductive inference, and inference to value judgments. For example, deductive inference includes (1) class logic, (2) conditional logic, and (3) interpretations of statements. From the foregoing it could be asserted that inductive inference involves (1) generalizing, (2) inferring explanatory conclusions and hypotheses, and (3) giving reasonable assumptions.

Moreover, inference, in relation to value judgments requires (1) background facts, (2) considering alternatives, and (3) balancing, weighing, and deciding. Bizar and Hyde (1989) also argued that inferential thinking contains two types: drawing inferences and drawing conclusion. Regarding the first one (drawing inferences), Bizar and Hyde (1989) stated the following: Inferential thinking involves putting together individual bits of information to derive a greater meaning than what one might expect from merely focusing on the bits themselves. When reading a passage, we infer a great deal; that is, we derive much more meaning than a literal interpretation of words" (p. 35). Another kind of inferential thinking, drawing a conclusion, involves taking pieces of information and synthesizing them into a meaningful idea which is greater than the separate pieces (Bizar and Hyde, 1989). They concluded that drawing inferences and conclusions depend heavily on students' schemata. That is, if the student does not have the requisite background knowledge or accurate schemata, he or she will not be able to build meaning from the materials being read.

Similarly, Facione (1992) also suggests there is a significant correlation between critical thinking and reading comprehension. His quotation follows "Improvements in one are paralleled by improvements in other."Celce-Murcia (2001, p.154) stipulates that

various models and theories explain what is involved when we read. She also postulates that current researches generally view reading as an interactive and socio- cognitive process. A synthesis of current research in reading suggest that reading is a process of constructing meaning through the dynamic interaction of the reader, text, and the context of reading situation that results in the acquisition of knowledge, experience or information (Anderson and Pearson, 1984; Paris, 1987; Wixson and Peters, 1984).Reading comprehension is thought to depend upon the reader's ability to interrelate appropriately acquired knowledge with the information suggested in the text (Mason, 1984) which are interrelated to reading and critical thinking.

Viewing reading comprehension as a vital part of second language curriculum, Barnett (1989) describes several reasons for its importance: It remains an important goal in many programs; it can be maintained after students complete formal language study; and it fosters the development of literacy skills. Some of the mental skills employed in reading comprehension, as Grabe (1991) states, are inference, analysis, synthesis, and evaluation which are what experts include "as being at the very core of critical thinking" (Facione, 1992).

The findings of the authors reviewed above strongly supports the effects of critical thinking strategies on reading comprehension performance of secondary students. Thus it could be adopted on this study that critical thinking and reading comprehension are related in the following ways:

- Provide evidence to back up or challenge the point of view
- Evaluate the validity and importance of a text/ position

- Develop reflective thought and a tolerance for ambiguity.

2.06 Critical reading strategies

Critical reading demands the reader to make judgments about what they read; this kind of reading requires posing and answering questions about the text and the author. Likewise, Richards and Schmidt (2002, p. 134) refer to critical reading as "Reading in which the reader reacts critically to what he or she is reading, through relating the content of reading material to personal standards, values, attitudes or beliefs, i.e. going beyond what is said in the text and critically evaluating the relevancy and value of what is read". Critical thinking is the very heart of reading comprehension. Children undergo transformation physically, emotionally and cognitive changes into adulthood. These changes bring in their wake new cognitive capability that first appears in secondary school years. This capability is the ability to stand back and reflect on one's own experience, to think abstractly and analytically. During the process of reading this capability allows students to enter a new stage of reading development in which a new, critical dimension of experience is acquired (Daura, 2013:13) . It is through critical reading that readers truly think for themselves thus the importance of encouraging students to interact critically with the text not only reflectively but also in a skeptical and analytical way and then to judge the value of the text (Kurland, 2005).

Making judgment and evaluation should happen while the reader maintains a view towards improving the nature of one's thought and one's subsequent actions (e.g. Paul & Elder, 2008, as cited in Tomasek, 2009). The requirement for the reader, thus, is to not only to grasp what is said in the text, but also go far beyond it using his/her higher-order thinking skills, prior knowledge, or other information sources through adopting a social

perspective. Carter and Nunan (2002) similarly define critical reading as "a reading practice which attends to the ideological underpinning of text, as signaled not so much by what writer chooses as a topic but how people, places, and events are talked about" (p. 220).

From an educational point of view, when students read text critically they are more motivated and more likely to use other processes that lead to effective comprehension. It is important for students to be capable of reading expository texts critically; reasoning through reading is an ability widely needed in the educational curriculum. Furthermore, according to Jones (2008), critical reading not only empowers students in second language learning skills such as vocabulary and reading, but also teaches them how to reach real understanding of texts and how to think about them with a critical view. A critical reader performs a mental action on the word-form and makes associations between the context and his own personal knowledge to infer word meanings (Wallace, 2003). The following list of strategies has been gathered from a variety of sources and is not meant to be exhaustive. Activities for teaching each of these were summarized in chapter three (details of critical reading steps are on Appendix).

(a) Making judgments about sources credibility: Good readers are always aware of the author's credibility. For instance, a veterinarian would be less credible

than a doctor on the subject of human health. A farmer would be less credible than a teacher if the subject were education.

(b) Distinguishing fact from opinion: Good readers are also able to distinguish facts from opinions. Facts are verifiably true. “it is forty today” is an example. Opinions are relative statements, such as “it is cold today”. Some might find forty cold and others not. Opinions are often, but not always, identified with qualifying words such as I believe, usually, and probably, and are more likely to contain emotionally laden words: “it was miserably cold today”(Zimex, 2012). Students are constantly reading opinions and must be encouraged to see them as such.

(c) Detecting emotionally laden words: This perhaps the easiest type of biased writing for students to detect. They can practice using words in their own writing. Or they can rewrite biased articles, removing the emotionally laden words. Other activities are suggested herein in the appendix.

(d) Establishing evaluation criteria before making judgments: This is one of the most important yet most ignored comprehension process. Although research on teaching questioning shows that evaluation questions are often asked to set up or define their criteria. A question is really not an evaluation question unless criteria are included. Consider a teacher who asks students if a story was good. The students answer yes. Now

consider a teacher who asks students what would make a good story. The students list the following crirteria: easy to understand, exciting, realistic, colorful, full of description, characters that are like people. The teacher then asks if the recent story was a good one. With which teacher are the students learning to think critically? Judgments should be made only after criteria have been defined. Make sure students can explain the basis for their judgments. Doing so will help them become more aware of their values, standards for quality, and so forth (zimex, 1998).

Teaching in critical reading is based on Meta cognitive techniques in which the reader learns to exercise conscious control of of the reading process based on one's purpose as reader and the demands of the text (Kamil, 2006. P. 54)**.** Along these lines, there has been a strong effort towards developing effective strategies, techniques, and model lessons to foster critical reading and higher level thinking skills in reading. However, to fully understand a text and critically analyze it, different steps in the form of strategies were adopted in this study from Sousa (2004, pp. 105-106) which include previewing, contextualizing, questioning, reflecting, outlining and summarizing, evaluating an argument, and comparing and contrasting related readings.

Previewing is learning about a text before reading it and entails prediction based on the heading and subheadings, for example scanning and skimming. Contextualizing requires placing a text in its historical, biographical, and cultural contexts and includes making inferences and

synthesizing. In questioning, the readers should ask questions about content and in reflecting they should examine their own responses and reflect upon the challenges to their personal beliefs and values and entails annotating, highlighting, and note taking. Outlining and summarizing require the readers to identify the main ideas and to restate and paraphrase. In evaluating an argument, which is testing the logic of the text as well as its credibility and emotional impact, readers are often asked to determine fact and opinion, find cause and effect relationships, determine claim and support, determine premise and conclusion, and finally analyze, interpret, and argue about the text. Ultimately, comparing and contrasting the related readings encompass exploring the likeliness and differences among texts for a better understanding (Sousa, 2004, pp. 105-106).

2.07 Critical Thinking Focus in teaching reading comprehension

There are many studies describing critical thinking instructional methodologies in reading comprehension. Until recently, it was generally assumed that students who attended college would develop critical thinking skills by attending classes, by listening to lectures and participating in class discussions, and by taking tests and completing regular course assignments. Several studies, however, have indicated that improving students' thinking requires more explicit teaching of critical thinking skills (Bangert-Drowns &Bankert, 1990; Halpern, 1998; Keeley, Browne, & Kreutzer, 1982; Perkins, 1989; Quellmalz, 1989; Underbakke, Borg, & Peterson,1993).

Moreover, research findings on the most effective instructional methods for improving students' critical thinking abilities have been inconclusive. McMillan (1987) reviewed 27 studies that investigated the effect of various courses and programs on critical thinking abilities among college students, and he found that while results have failed to support the use of specific instructional or course conditions to enhance critical thinking. However, they did support the conclusion that college attendance improves critical thinking. McMillan has cautioned against generalizing these findings to all methods or courses,

citing weak research designs, a lack of good instrumentation appropriate to the interventions being evaluated, and lack of a common definition and theory of critical thinking. Halpern (1993) has suggested that available assessment instruments may contribute to the problem of determining the effectiveness of various models for critical thinking.

The revival of attention to critical thinking, along with an increasing interest in developing higher order thinking skills for all students at all levels of ability and education, has led to several different approaches to teaching critical thinking skills. The teaching of reading needs to include a range of comprehension strategies. Comprehension strategies are mental processes that good readers use to understand text. These strategies need to be explicitly taught towards developing independent readers who engage meaningfully with text.

2.07.1 Approaches, Methods and Techniques of Reading Comprehension Instruction

The terms approaches, methods and techniques in language teaching and learning have been misunderstood and thus need clarification for clear understanding. Lawal (2004) asserts that an approach is a general educational or instructional orientation founded on assumed theories of knowledge and values (philosophy), of learning (psychology) and of society (sociology) and how the three interact harmoniously and progressively. To him, methods are components of approaches. The type of approach recommended determines the method of instruction while techniques are specific steps, actions and activities which the teacher either adopts or initiates at various stages of his/her lesson. Techniques are specific components of a method. Among such approaches has been the development of specialized critical thinking strategies in reading comprehension lessons. Two basic views

of reading instruction grew out of this activity: the skills-based approach and the meaning-based approach.

Skills-Based Approach: The skills-based approach was highly influenced by the work of Chall (Snow, Burns & Griffin, 1998). In skills based learning, phonics skills are taught in isolation with the expectation that once sound-letter relationship are learned, meaning will follow. Emphasis is placed on intensive phonics instruction that is highly sequenced. Typically, this approach uses reading programs that offer stories with controlled vocabulary made up of letter-sound relationship and works with which children are already familiar. This type of instruction was widely used in the 1960s and 1970s and today is being promoted as part of back –to basic movement.

Meaning-Based Approach: The meaning based approach to reading was highly influenced by the work of Kenneth Goodman (Samuels & Kamil, 1984) Goodman was a leader in the development of the psycholinguistic perspective, which asserts that readers rely more on the structure and meaning of language rather than on the graphic information from text. Goodman's work in miscue is a higher level of comprehension. Children focus on the wholeness of words, sentences, paragraphs and entire books to derive meaning through context.

Whole-language Approach: Advocates of the whole language approach believe that learning to read is a natural process, very much like mastery one's native language. Reading is regarded as a kind of guessing game in which students sample words and make predictions and guesses about meaning based on the context of other words in the passage and on their prior knowledge. This approach became popular in the 1980s and has continued through the 1990s.

Linguistic Approach: Linguistic approach to the teaching of reading emphasizes the importance of mastering the structural patterns of spoken and written English, intonation, stress and word order.

Psychological Approach: This is concerned with a critical Assessment of procedures, with indoctrination in the more efficient procedural techniques, as well as with reading ability testing, and the measurement of results. But the psychological approach is also linguistically-oriented, because such factors as language and thought, semantic differentiation, information and communication theories, and so on, which help to throw light on the nature or problem of reading.

It is also partly an environmental study, because the educational psychologist is interested in finding out: (a) what part the geographical environment (climate, physical environment etc) plays in failure to read efficiently? (b)what part does the cultural environment (viz. the racial, tribal, or village way of life, or the attitudes acquired there from) play in it? (c) what part does the social environment (the family background of the reader or learner; the type of schools attended and his experiences there, the social or extracurricular activities of the learner, etc) play in facilitating or limiting his efficiency in reading?

The Combined Approach: The strictly linguistic and the strictly psychological approaches are inadequate if considered separately. The linguistic approach tends to ignore basic psychological factors, which may have little or nothing to do with linguistic facility, or which might even be the cause, rather than the effect, of the linguistic inadequacy which affects readers' efficiency. The psychological approach, on the other hand, tends to

emphasize corrective scientific procedures at the expense of basic remedial teaching of English or the structural essentials of the language of communication.

2.07.2 Techniques of Reading Comprehension Instruction

Research has revealed that readers use two levels of strategies when they process print. They are: cognitive strategies and meta cognitive strategies. Cognitive strategies enable the reader to understand written text. It is under the heading of meta cognitive that researchers discuss motivation, focusing attention, managing time, deciding what to read, along with method for reading such as reading the conclusion first, looking for keywords and summaries reading for main ideas, identifying the structure of text**,** self questioning and reading to remember. In practice, the two level of strategy work together. Studies have demonstrated that better readers and learners to about the reading task more strategically than others do, which means they have greater conscious control over what and how they read. To Baldridge (1970) there are seven reading strategies or techniques and these are presented below:

Survey Reading Strategy: This is the technique of sampling key parts of a material in order to grasp major points quickly and to discover the overall organization in a short period of time.

Speed Reading Strategy: The main strategy here is to obtain general familiarity with the content by scanning at exceptionally high speed. Scanning is a rhythmical flowing of the eyes over every page, as opposed to survey reading. Scanning is selective and careful sampling of key parts.

Phrase Reading Strategy: Phrase reading is developed on encouraging the eyes to move quickly by looking for groups of words rather than stopping at every word. The reader unconsciously lifts meaning from phrases and devotes his time to interpreting the significance of the ideas and information he is reading.

Close Reading Strategy: The objective of this strategy is to clearly comprehend and store information in a logically organized way for easier recall and later use.

Inquiry Reading: The main objective is to develop a longer span of concentration and discover deeper levels of meaning. It involves the use of vigorous questions to analyse and comprehend the more difficult ideas.

Critical Reading: The aim is to have or express adjustment concerning the veracity, validity or worth of what is being read based on sound criteria or standards. It seeks well-seasoned judgments and deeper involvement through sound analysis.

Aesthetic Reading: The objective is to expand awareness and the enjoyment of literature. The benefits of a aesthetic reading include: increased understanding through the discovery of deeper meanings within a written word; Heightened personal experience through the clarification of one's own thoughts and moods; Added or increased awareness of life through experiences and attitude of others.

There are many others approaches used in Reading Comprehension Instruction (RCI) such as: Students Achieving Independent Learning (SAIL) which teaches reading processes as strategies through direct explanation, and Direct Explanation (DE) which develops teachers' "ability to explain the reasoning and mental process involved in successful reading comprehension" (Williams 2002: 249). The Transactional Strategy

Instruction (TSI) approach combines direct explanation with the ability of teachers to facilitate discussion, while Collaborative Strategic Reading (CSR) combines reading comprehension strategy instruction and cooperative learning (Klingner and Vaughn 1999): According to Kamil (2004), cooperative or collaborative learning can be considered both as strategy and social organization that fosters learning.

Specifically, studies by Richards (1998),Burks(1995) and Wishon (2008) supports the positive effects of teaching reading through collaborative/cooperative approaches. This study believes that the interactions involve in these approaches can be gained from the views of the three authors mentioned above. Thus, it is possible that their suggestions can guide this study in its attempts' to use Think-pair share method and Reciprocal teaching method as is explained in chapter three under data collection procedure.

Clearly, diverse models and methods exist to help students improve their critical thinking abilities. While each has its proponents, little empirical research has been conducted to determine if one approach works better than another in improving students' critical thinking skills and reading comprehension performance.

The following list summarize the advantages of these diverse models and methodologies :

1. Promote active learning in a group setting. This gives students an opportunity to be accountable, learn from others, and enhance their critical thinking skills (Gokhale, 1995;Johnson, Johnson, and Smith, 1998).

2. Promote student-generated questions. Evidence suggests that higher-order thinking skills are used when students formulate their own questions (Ciardiello, 1998; King1994).

3. Probe student's thinking using open-ended questions. This has a tendency to make students think more analytically and thus use higher order thinking skills (Potts, 1994).

4. Promote the transfer of acquired critical thinking skills by linking the need of a particular newly acquired skill to other situations and perhaps the student's own experiences. (Halpern, 1998).

5. Promote the evaluation (critique) of information. Evaluative skills use reasoning(being more critical of information), argument analysis (comprehension and coping with the complex nature of arguments), and scientific analysis (forming a hypothesis, collecting data, analyzing the data and then making conclusions) (Fitzgerald, 2000; Halpern, 1998, 1999).

6. Promote decision-making and problem solving (Halpern, 1998; Lrynock& Robb,1999). This skill essentially involves the ability of a person to intelligently judge between alternatives in a problem situation - real world scenarios being the most effective**.**

2.08 Critical Thinking Assessment in reading comprehension

Assessment remains a major concern in developing programs to enhance students' critical thinking skills. Until a concept can be defined and assessed, adequate models for

teaching are difficult to develop. Despite the lack of a comprehensive theory of critical thinking, varied efforts have been made to develop assessment tools. The complexity of reading comprehension presents challenges for assessment. especially as the many cognitive that contribute to reading comprehension are convert and therefore cannot be directly observed or measured. According to Daura (2013), a thorough assessment should include tests designed to measure both decoding and comprehension. She added further that given the complexity of comprehension, it seems likely that children may fail to understand what they have read for a variety of different reasons(Daura 2013:60) Thus Daura is of the view that a completive assessment should include measures of methods of decoding accuracy and fluency, general cognitive resources as well as reading comprehension(Daura, 2013:60)

Three main approaches to assessing critical thinking have commonly been used: (a) commercially available general knowledge standardized tests (b) researcher or instructor designed assessments that attempt to capture aspects of critical thinking more directly related to the purposes of the research project or subject of instruction, and (c) teaching students to assess their own thinking. Each of these will be discussed with reference to its applicability to this study. Commercially available standardized general critical thinking tests (eg. California Critical Thinking Skills Test, the Cornell Critical Thinking Tests, and the Watson-Glaser Critical Thinking Appraisal [Murphy, Conoley, &Impara, 1994) have typically relied on multiple choice responses that test major aspects of critical thinking, including interpretation, analysis, inference, recognition of assumptions, assessing credibility, and detecting fallacies in reasoning. None have claimed to test for all aspects of critical thinking in reading comprehension.

Their use as assessment instruments in reading comprehension is facilitated by their ease of grading (machine scoring) and has allowed comparisons among research projects using various models of teaching for critical thinking. On the other hand, while they test how well a student reasons from written material, they cannot assess whether students are able to generate clear, well-supported written or oral arguments, whether they can solve open-ended problems, or whether they have developed dispositions to use critical thinking skills when appropriate. Some researchers have suggested that multiple-choice tests are not valid indicators of critical thinking ability because test-takers are not free to determine their own questions or apply their own evaluative criteria (Keeley& Browne, 1986). Some researchers have advocated using student-generated responses, including essays, to test adequately for critical thinking (Browne &Keeley, 1988; Norris & Ennis, 1989; Paul &Nosich, 1992).

Several general knowledge standardized essay tests for critical thinking have been developed as alternatives to multiple-choice formats in attempts to assess students' abilities to generate arguments and to capture the open-ended problem solving nature of critical thinking. The Ennis-Weir Critical Thinking Essay Test (Ennis & Weir, 1985), the best-known and most widely used example, requires students to read an essay on an everyday issue (overnight parking on a city street) containing numerous reasoning errors and to construct their own response. This standardized commercially available essay test of general critical thinking ability provides several advantages over multiple choice tests or instructor-developed essay tests, including student-generated responses, carefully established validity and reliability, and national recognition. While standardized essay tests have included suggested standards and criteria for grading essays, the time and cost

involved in grading open-ended assessments and the expertise required to grade them reliably has limited their use.

Other approaches to having students provide reasons for their responses and/or generate their own responses on commercial standardized general tests of critical thinking are being studied as well. Norris and Ennis (1989) have argued that a student's *reasons* for a particular answer must be considered, and they have proposed follow-up multiple-choice questions that probe student reasoning. Norris (1991) has suggested the use of verbal reports of thinking to assess multiple-choice responses. Paul and Nosich (1992) have argued for the inclusion of multiple-rating items that allow students to rank, from a number of possible choices, those reasons that are more correct. They have further suggested constructing test items so that a list of possible answers could refer to any number of independent test items, and individual answers could be used several times or not at all. These strategies would eliminate guessing as a factor in test scores.

While various additions to critical thinking assessments are being tested by these and other researchers, standardized critical thinking tests that include these enhancements are not yet available commercially. Recent efforts have addressed the issue of critical thinking dispositions in the form of a standardized commercially available test. Dispositions (otherwise referred to as attitudes or intellectual traits) have been variously considered as an integral part of critical thinking or as a separate but overlapping concept. The Ennis-Weir Critical Thinking Essay Test tests for some critical thinking dispositions in combination with testing for reasoning ability (Norris & Ennis,1989; Taube, 1997), but attention to testing for critical thinking dispositions separately from critical thinking skills is relatively new. Halpern (1993) has pointed out that a quality assessment must test both a

student's critical thinking skills and whether they can use those skills without being told to do so. The careful developed, standardized scoring, and general use make them good candidates for use in educational research projects

. A second approach to assessing critical thinking is researcher or instructor developed tests. Norris and Ennis (1989) have provided examples and criteria for instructors interested in developing assessment techniques for such purposes as testing domain-specific critical thinking, testing for transfer, evaluating a critical thinking program, formative evaluations, or determining grades. Perhaps the most appropriate way to assess students' critical thinking abilities is to teach them to assess their own thinking. Paul has written extensively on teaching students to assess their own work, and he has argued that to the extent that students need feedback from instructors, they have not achieved a high level of critical thinking (Foundation for Critical Thinking, 1996).

Angelo and Cross (1993) have also emphasized the importance of student self-assessment techniques. This approach seems to comprise an integral part of teaching for critical thinking and needs to be addressed more broadly by researchers. While highly appropriate for classroom use, however, it requires a deep understanding of California Critical Thinking Dispositions Inventory, based on the consensus theoretical model and dispositions enumerated by the Delphi Report experts, tests for seven subsets of critical thinking dispositions using a six-point Likert scale (Facione&Facione, 1992). Each of the commercially available critical thinking tests is limited in its ability to adequately assess changes in students' critical thinking abilities.

2.09 The Role of Gender Differences in Critical Thinking Strategies and Reading

The word gender refers to traits and behavior that a particular culture judges to be appropriate for men and women while sex refers to biological differences. Men and women are different. Years of research on personality indicates that men on the average are more assertive, active and aggressive in their actions while women are more extroverted, anxious, emotionally sensitive and dependent (Woolfolk, 2006).The common goal of all teachers is to provide equitable learning opportunities for every student (boy or girl) in the classroom.

The issue of gender differences in critical thinking has remained an area of controversy among researchers. Some studies reject gender differences on critical thinking measures and some are in favor of the influential role of gender differences in critical thinking skills. Research evidences and experience have shown that gender is a significant factor in determining the performance of students in learning tasks. Research findings have been inconclusive as to whether boys (males) achieve higher than girls (females). In his study, Jiboku (1991) reports that significant difference exist in the performance of male and female subjects. Female subjects performed better than male subjects in reading comprehension. To support his findings he asserted that females have left cerebrum, that is the sphere that deals with verbal skills and it is more developed; while males have the right cerebrum sphere that deals with mathematical reasoning and spatial relationship. Most recently, it has been reported that females have improved their educational performance. (Heaton& Lawson,1996).

The reasons for the change according to Heaton and Lawson can be attributed to the changing attitude of boys and girls towards education, work and career, with boys falling behind in achievement and social policies aiding female achievement. The following

provincial, national and international assessments have produced results that echo the assertions. The Manitoba Standard Tests indicate that boys typically score lower than girls on standardized tests in the language arts. The results of the senior 49 (SS I) English Language Arts Standards Test administered in January 2004 and June 2004 showed that boys do not perform as well as girls in reading and writing. Again, the assessment report of the Progress in International Reading Literacy Study (PIRLS) conducted in 2001 revealed that Grade 4 girls performed better than boys in all thirty four (34) countries where the assessment was administered including Canada, where two Canadian provinces Ontario and Quebec, participated in the study (UK Department for Education and Skills, n.d).In addition, the results of the Programme for International Student Assessment (PISA) conducted in 2000 show that girls performed better than boys on the reading test in all countries. Result show that there are considerable gender differences among 15 years old. Specifically, female students were more interested in reading and perform better in reading and literacy on average across OECD countries while males perform better in mathematics (PISA websitewww.pisa.oecd.org).

The evidence of weaker reading and writing skills among boys by these and other assessments has been an issue of major concern, since poor literacy skills can have a profound effect on performance in other school subjects as well as on students', success throughout their lives. It was suggested that the use of dialogue and the provision of class experiences, interests, needs and learning styles of all students should be explored. Smith & Wilheim, (2002).Yusuf (2005) in his article "Gender differences and equal opportunities in the ESL classroom" opines that there is evidence from cross-gender conversations between the various possible combinations of Native Speakers (NS) and Non Native

Speakers (NNS) to suggest that men and women tend to use conversation for different purposes. According to him, men take advantage of the conversation in a way that allows them to promote their performance and production ability, whereas women utilize the conversation to promote their comprehension ability. He submits that the main pedagogical conclusion from this evidence is that ESL/EFL teachers should be equipped with a good syllabus and methodology and should be able to engineer situations that create equal opportunities for both males and females in all aspects of classroom interactions.

The literature on gender and reading strategies does not show greater strategy utilization for either males or females, although there have been relatively few studies on the subject. For instance, Kuhn's (1992) findings revealed that argumentative thinking does not differ with sex. Semeric (2010) reported that the relationships between gender and sub dimensions of Critical Thinking were almost zero. The studies of Myers and Dyer (2006) confirm this finding. In these two studies, it was found that there were no differences between the CT skills of male and female students (Myers & Dyer, 2006).On the other hand, Simon and Ward's (1974) results indicated that men performed better than women on the Watson-Glaser test, and this was due to their better performance in the subscales of inference and evaluation of argument. Researchers have demonstrated that women have different "ways of knowing" from men (Belenky, Clinchy, Goldberger,&Tarule, 1986; Clinchy, 1994; Miller, Finley, & McKinley, 1990).

As with age differences, the extension of gender differences to critical thinking and its component constructs such argument analysis and generation and reflective judgment has remained a topic of debate. King and Kitchener's (1994) research and summary of findings on the Reflective Judgment Model found somewhat mixed results. Of the 17 studies

reviewed, 6 indicated that males scored higher on the Reflective Judgment Instrument and the rest reported no difference or, in study, a class by gender interaction. King and Kitchener have suggested that reported differences may be due to a variety of factors in addition to gender, including differences in academic aptitude or rates of maturation. Baxter-Magolda (1992) has concluded from her research that gender differences in students' reasoning patterns and ways they justify their thoughts are fluid, a continuum with numerous variations and combinations rather than a dichotomy between female and male students. No single reasoning pattern was used exclusively by women or men, nor did students, male or female, limit themselves to one reasoning pattern over time or between different domains.

Furthermore, she has found more similarities than differences in men's and women's ways of knowing, and she has also determined that different reasoning patterns led to equally complex ways of viewing the world. Kuhn's (1992) data supported Baxter-Magolda's findings; she has concluded that argumentative reasoning ability does not differ systematically as a function of sex. No evidence from her investigation has suggested that one sex is any more disposed or competent to engage in argumentative thinking than the other.

However, research evidences and experience have shown that gender is a significant factor in determining the performance of students in learning tasks. Research findings have been inconclusive as to whether boys (males) achieve higher than girls (females). The evidence of weaker reading and writing skills among boys by these and other assessments has been an issue of major concern, since poor literacy skills can have a profound effect on performance in other school subjects as well as on students' success throughout their lives.

In addressing the needs of boys, it was suggested that the use of dialogue and the provision of class experiences that respond to the interests, needs and learning styles of all students should be explored. Smith Wilhelm, (2002)Yusuf (2005) in his article "Gender differences and equal opportunities in the ESL classroom" opines that there is evidence from cross-gender conversations between the various possible combinations of Native Speakers (NS) and Non Native Speakers (NNS) to suggest that men and women tend to use conversation for different purposes. According to him, men take advantage of the conversation in a way that allows them to promote their performance and production ability, whereas women utilize the conversation to promote their comprehension ability.

The main pedagogical conclusion from this evidence is that ESL/EFL teachers should be equipped with a good syllabus and methodology and should able to engineer situations that create equal opportunities for both males and females in all aspects of classroom interactions. The literature on gender and reading strategies does not show greater strategy utilization for either males or females, although there have been relatively few studies on the subject. One of the few studies that specifically looks at male and female differences in reading strategies is that of Phakiti (2003), who examined how 384 (N = 173) and female (N = 211) Thai college students utilized cognitive and meta-cognitive strategies while taking final exam at a large Thai university. Using questionnaire that asked students to recall the strategies that they used, the author found that while there were no significant differences between males and females in terms of the cognitive strategies they used, men used significantly more meta-cognitive strategies than their female counterparts, even across different proficiency levels. Again, Smith and Wilhelm (2002) identified the

following gender differences related to literacy that teachers may encounter in their work with individual learners with respect to achievement:

- Boys take longer time to learn to read than girls
- Boys read less than girls
- Girls tend to comprehend narrative texts ,most expository texts significantly better than boys do
- Boys tend to be better at information retrieval and work-related literacy lasts than girls are.

The question of gender differences in critical thinking and reading comprehension performance remains a topic of controversy among scholars. Research findings have not yet resolved this issue. It then means there is the need for further investigation on the issue of gender differences, critical thinking and reading comprehension performance in Nigeria secondary schools.

2.10: Academic Ability and Critical thinking & Reading comprehension .

Students differ in terms of intellectual abilities. While some are above average, some are of average intelligence and some are dull. Some students exhibit differences in terms of verbal reasoning, numerical ability, clerical speed and accuracy, language usage, space relation and mechanical reasoning. Arua (2005)states that students reading abilities are often grouped into three according to performance levels: frustration, instructional and independent. A student operating at the independent level needs no help from the teacher. He/she is able to read the text for pleasure, and between the lines. At the instructional level, the student needs the teachers' help. He/ She is able to read along the lines. It is referred to as the ideal level. The frustration level implies that no amount of help from the

teacher will enable the pupil to comprehend the text. The text is too difficult for pupils at this level to process..

In a study by Oyetunde (2003) on how secondary students' process print, findings showed that majority of the readers were at the frustration level using narrative expository texts. Considering students differences in their abilities and performance levels, it is necessary that teachers should organize them into small groups in such a way that instruction is provided on a small level that will be of benefit to each student. In the study of Isuigo-Abanihe (2002) on qualitative evaluation of reading instruction of primary schools in Abia State, a sample of 20 teachers from 10 primary schools and 698 pupils participated. A two stage qualitative observation procedure was adopted for data collection. Results indicate that in none of the classes were learners observed reading nor discussing in small groups. According to her, this practice offered little or no opportunity for the average ability and poor readers to interact with the text. The large class sessions offered the weaker pupils opportunity to observe their stronger counterparts excel. Webb in Gillies and Ashma (1992) found that high ability students gave more help to their peers in mixed ability groups than they did in uniform ability groups.

Conversely, medium-ability students gave and received more explanation in uniform – ability groups than they did in mixed ability groups Gillies and Asthma (1992) in their study on effect of gender and ability on students behavior and interactions in classrooms based work groups, participants in the study were 440, 6 children each participated and worked on class-based activities in small groups structured so that all the members had to cooperate in order for the group to achieve its academic objectives.

Contrary to expectation and the findings of other researchers, the effects of different ability and gender compositions in the group on the members' behaviors and interaction were minimal. Findings showed that the group members irrespective of gender and ability had more time to work together; they became more responsive to the needs of each other and gave more explanations to assist each other's learning so that all groups achieved comparable learning outcomes. It could be asserted that Cooperative Instructional Methods can be effectively used as critical thinking strategy in order to improve performance in reading comprehension.

2.11 Cooperative Instructional Method as CT Strategy for Reading Comprehension

Cooperative instruction is a successful teaching method in which small teams, each with students of different levels of ability, varieties of learning activities to and it also makes the learner think and learning dependently. Students appreciate teachers who try creatively to accommodate their different learning styles, learning rates and multiple intelligences in any classroom in any school. There are various instructional approaches - that are central to effective interaction in learner- centred-classrooms. They include: discussion, problem solving, role play, cooperative group work, laboratory; scaffolding etc. In a cooperative learning situation, when one student achieves his or her goal, all others with whom he or she is cooperatively linked achieve their goals.

Cooperative instruction according to Johnson (1999) has five elements. They are: face to face interaction, positive interdependence, individual accountability, collaborative skills and group processing. In cooperative instructions, students interact face to face and have close interaction. Group members experience positive interdependence that is; they need each other for supports, explanations. Individual accountability involves the fact that

although group members work together and help each other, members must be able to demonstrate learning on their own; they are held individually accountable for learning, often through individual tests or other assessments.

Collaborative skills like giving constructive feedback, reading consensus, and involving all members, are necessary for effective group functioning and must be taught and practiced. Finally members learn about group processes. There are various models of the cooperative instructional strategy and they have been used with many subjects in almost any grade. These include: Scripted Cooperation Group investigation, Student achievement division,Think pair share, Reciprocal method and many more…For the purpose of this study the last two listed was used for this study in order to assist students in reading comprehension.

Think-Pair-Share: is a cooperative discussion method developed by Lyman and his colleagues in Maryland. It got its name from the three stages of student action, with emphasis on what students are to be doing at each of those stages. Woolfolk (2006) observes that one implication of Vygotsky's theory of cognitive development is that important learning and understanding require interaction and conversation. She adds that Students need to grapple with problems in their zone of proximal development, and they need the scaffolding provided by interaction with a teacher or other students.

Think-Pair-Share involves the use of instructional conversations which promote learning during conversations; learners' mediates each other's learning through dialogue about the shared experience. Students are allowed to contribute different levels of interpretation of a text, while the teacher notes the interpretation. Palincsar (1998) and Woolfolk (2006) assert that students learn more when they engage in talks that are

interpretative, analytical and explanatory because talking enhances recall and comprehension of materials. Onukaogu (2003) pointed out that the inferential comprehension of many students is enhanced during the thinking process as they draw from their previous experiences and these experiences assist them to interpret the purpose, tone or mood that informed the experience which a writer is conveying in his text.

Reciprocal Teaching: This is the creation of Palinscar and Brown. Reciprocal teaching involves the use of four comprehension strategies: summarizing, questioning, clarification, predicting. Some think the choice of "reciprocal" in the name of this strategy is slightly misleading. It conjures up the image of a student in front of the class, or students taking turns telling each other important ideas in the text. Instead, the strategy is best at seeking to promote comprehension by tackling the ideas in a text on several fronts. Woolfolk (2006) explains that reciprocal teaching techniques are strategies skilled readers apply almost automatically whenever they process print but poor readers seldom do probably because they do not know how to use them. Pearson et al (1992) also submit that although there is no way to determine the relative contribution each of these techniques makes to comprehension improvement, students generally perform better whenever it is used. Oyeneye (1999) corroborates this by asserting that children learn to read, write and improve their mathematics skills when they work in groups cooperatively.

Commenting on the benefits of group work, she adds that children develop the spirit of team work and appreciate the uniqueness of one another as they coordinate themselves and assume leadership roles. Pearson et al (1992)state that a logical extension of reciprocal reading on the levels of comprehension is the ability to synthesize information across larger units of text. Anderson and Pearson add that research on reading has revealed that

drawing inferences is an essential part of the comprehension process. Reciprocal Teaching techniques promote comprehension as well as provide opportunities for students to monitor their learning and thinking. For instance, summarizing techniques has proved effective in teaching students to identify the most important ideas in a text (Taylor 1992).

Various studies on cooperative instruction have been conducted especially with the aim of comparing cooperative instructional with competitive and individualized (conventional instruction)internationally and in Nigeria. In these studies, teachers and learners were assigned either to cooperative or competitive and conventional conditions or they were evaluated on pre-test, post test achievement and other learning outcomes.

Palinscar and Brown (1984) findings on reciprocal teaching using the four techniques of questioning, summarizing, clarifying and prediction reveal that students were able to engage in discussion about what part of the text were difficult for them. The researchers reported impressive effect. In a quest to help students learn how to assume control over their own learning.

Several studies have tried to teach students to generate their own questions. Results of the empirical studies have been uneven (Samuel & Faastrup, 1992). For instance, Tierney and Cummingham (1984) reported mixed and inconclusive results. Nevertheless, in the study of Singer and Donlan (1982) high school students were taught to generate story-specific questions from a set of general questions about story structure. Students who generated their own questions showed greater improvement in comprehension than did students who simply answered questions constructed by their teachers. Palinscar and Brown (1984) provide additional strong evidence for the effectiveness of student-generated questions. In a series of studies, they trained junior high school students in four techniques.

Careful modeling in the form of a teacher-student dyad was established to train students how to ask good questions. There searchers reported impressive effects of their instructional intervention program. These studies corroborate the research of Andre and Anderson (1979). In their study, students who were trained in generating question out-performed students who either generated questions on their own or merely re-read the text. Students without training in generating questions performed better than students who simply re-read the material.

Taylor and Frye (1987) found that reciprocal teaching intermediate grade students to write hierarchical summaries for textbook materials. Working in groups of four, students read through their social studies text a paragraph at a time. Teacher reads the paragraph to the group and asks an important question about the paragraph. Then he or she summarizes the paragraph on a sheet of paper. After working on paragraphs for approximately three lessons,the groups spend another three or four lessons working section by section. Finally, students go through their textbooks on their own, writing summaries for each section.

2.12 Description of Secondary Student in Urban secondary schools in Nigeria

Most students in urban centers today live dual lives; they go about the business of their actual life while at the same time creating virtual lives via the mobile phones, internet and social-networking websites. Students have ready and immediate access to electronic gadgets and mediums that divert their attention from everyday routines, including school children grow up surrounded by digital media, they can communicate with peers around the world; they can find obscure information in seconds. Yet they are unprepared for the tradition classroom activities obtain in most secondary school of today (Senechal, 2010, p. 5). Mendelman (2007) warned that in a day and age in which more and more children grow

up engaged with primarily passive activities like television, video games, and the internet, teaching critical reading is one of the most important, and most difficult, burdens of the classroom teachers (p. 300).

In school, students are struggling to demonstrate the stamina necessary to think profoundly about ideas. Unlike popular video games, in which what you see is what you get and you need only engage in the here and now in order to succeed, success in the complexity of the real world demands an ability to step back from a complete absorption in the limited parameters of the superficial moment (Mendelman, 2007, p. 300). The problem, and sad reality, is that few secondary schools and secondary teachers are readapting curricula to help students develop and exercise critical thinking skills. Paul and Elder (2008a), claimed that while educators have taught students to see subjects and disciplines as atomic facts, bits, and pieces of meaning to store in their minds for a test, and then to forget to make room for another test, teachers have neglected to teach students to see how these bits form a composite, broad view (p. 88).It could be infer ; that instead of teaching students to merely memorize facts easily found on the internet, lecture notes and textbooks, secondary school teachers should teach students how to think: clearly, accurately, precisely, relevantly, deeply, broadly and logically.

Because of the tendency of students to equate learning with short-term proficiency of fact recall many students read in superficial and impressionistic ways, vaguely, often erroneously, creating misleading facsimiles of what they read. They cannot be trusted to accurately capture the meaning of the texts they read (Paul & Elder,2009a, p. 288). An important point to note from Paul and Elder's statement is that most students fail to recognize that they are not learning the skills that equate to college and life success. Many,

if not most, students tend to be unaware of the components of the thinking skills in which they need to be more proficient. Yet, it is the knowledge of these skill components and proficiency in applying them that lead to skillful thinking. According to Beyer(2008, p. 197). The role of educators is all-important in recognizing that the lack of college-readiness is in part due to the fact that too few teachers are explicitly teaching the skill-sets students require. Many of the secondary school lessons are designed so students can pass without ever being required to think deeply and to many secondary school teachers design courses in which they work harder than their students (Paul & Elder, 2008b, p. 35).

The traditional textbook approach of read a passage and test—is no longer conducive to a rapidly evolving global context. Focus on traditional texts is inadequate as they do not allow for a full consideration of how texts and their readers are shaped by socially and culturally constructed practices related to beliefs, attitudes, and norms (Thein, Oldakowski, & Sloan, 2010, p. 23).Majority of secondary schools fail to teach critical thinking and, as a result, the majority of student populace does not practice it‖ (Mendelman, 2007, p. 300). Secondary school students will not be ready for the new roles they undertake in school] given they didn‘t even have the words to describe the skills they should have been honing throughout their junior and senior secondary school years. There is a serious readiness gap, the gap between being fully credentialed and fully prepared (Pittman, 2010, p. 11). Secondary-level schools are not the only educational institutions slow to change. critical thinking needs to be included even in primary and junior secondary schools curricula. Critical thinking practice needs to begin as soon as young students first enter school. Beyer (2008) encouraged schools to consistently expose students of all ages to thinking

strategically. He asserted that what our students learn, produce, and achieve in class depends considerably on how well and how consistently they apply these skills (p.196).

2.13 Critical thinking, reading and the Socio-Cultural Contexts

Learners are "influenced by the cultural background they come from and the socio-cultural context within which they operate at home" (Cohen and Cowen 2008: 108). Thus, learners will learn to use language and understand it according to the ways their culture has presented it (Cohen and Cowen 2008: 108). The socio-cultural contexts, is the view that reading is more than a set of cognitive processes. Cognitive processes which occur in each individual reader are but "a part of reading because reading is socially and culturally constructed through interactions with others in different environments" (O'Brien, Moje and Stewart 2001: 31).

The argument that the socio-cultural context of different classrooms which include the linguistic practices of students and teachers, interaction patterns between teachers and students succinctly affect the critical thinking of the students. Thus, students learn how literacy is used and how knowledge is communicated both at home and at school and that is why it is important for teachers to understand their students' culture to know how students construct meaning so that teachers can present reading instruction in such ways that will promote comprehension. This implies that for reading instruction to have positive effects on students it must consider what learners bring or do not bring into the learning situation. What they bring can be used to facilitate learning and what is not brought can be explicitly taught in school.

2.14 Authors Reviewed and Gains of Literature reviewed

To guard against plagiarism and proper acknowledgement of the authors reviewed Table 2.1 gave a glance, gains of the related literature reviewed as follows: Authors reviewed, aspect of the work reviewed, and aspect applicable to present study.

Table 2.1 Showing the Gains from Literature Reviewed

Author reviewed	Aspect reviewed	Aspect applicable this study
Abe, 1999	Critical thinking (CT) not extensively develop in Nigeria.	Ability to think is a necessary outcome of education- Introduction.
Beyer,2008.	C.T components in reading lead to skillful thinking	Proficiency in applying CT lead to skillful thinking.
John,D.1933	Ability to think critically viewed as necessary outcome of education.	Learning to think is central purpose of education.
Halvolvosen,2005	Exploring possible alternative to issue.	Defining concept of CT
Richard, Paul. 2004	Reflective mind improve its thinking by reflective about it…	Stressing the connection between CT and reading comprehension.
Owolabi,2003	CTS & objectives not fully incorporated in sec. sch. curriculum and recognize in Nigeria.	Implementation of CTS & objectives will put Nigerians par with all educated people in the world.
Education,1981	Nigeria adopted CTS as one of educational goals.	Reflective and critical thinking recommended for all levels of edu
Pescatore ,2007:300	For social change to occur..	Citizens think, read and react to transform the world.
Mendelmen,2007	CT component Development of C.T in Nigeria	Reading comprehension as vehicle for teaching CT
Dewey,1933.	Learners need to apply CTS skills.	…Purpose of education is learning to thinking.
Kealay,H.2005	CT solve complex problem for learners.	CT needed in academic studies
Yeh,2005.	CT results in information explosion	CT leads to critical choices
Oliver, Utermoh 1995	Rapid tech .dev.due to CT	Introduction
Paul,2004	Lower order learning is associative rote learning	CT deserves additional consideration due to problem-solving attitudes…etc
Kuhn,1992	Role of gender diff. in CT. Teaching of CT	Findings on gender differences and critical thinking.
Cuttings & Scarh, 2006	Situation to develop critical thinking dispositions.	Proving critical thinking skills through reading strategies
Oyetunde,2009,	Previous studies on CTS& reading compre.	Need for further studies in senior

Yusuf,2011	In primary and junior sec. school	secondary schools in Nigeria.
Olaofe,2013	Engagement CT leadsto logical reason, inference etc.	CT is expected to reduce dullness in classrooms.
Strohm&Baukus1995	Ambiguity and doubt as CT function.	CT involves asking questions, examining evidences…etc
Johnson ,Laid 1991	Mental-Model adopted	Conceptual framework
Widdowson& Cook 1983	Cognitive character of schemata.	Incoming information known …prior knowledge.
Olaofe,2013	Schemata are essentially expectation enabling human being to understand and interpret world of reading	Conceptual framework.
Peter,Facione (1990)	Schemata…purpose of dialogue…prior knowledge.	Importance of background knowledge in reading.
Facione,& Giancarlo, 1996; Walton,1998.	Explanation of the national Delphi study in America define critical thinking	Conceptual framework
Norris and Phillips, 1987	Uses argumentation schemes that obstruct the purpose of dialogue…	Mental-model…conceptual framework.
Marzano et al,1988.	CT provide means of explaining ambiguous Reading tex…	Enhancing the concept of reading comprehension.
Anderson,1994	Links between background knowledge, subject area and CT.	Schema theory conceptual framework.
Beyer,1987,1985.	Six ways in which schemata functions in thinking and remembering text information.	
Mcpec,1981,Ennis ,1962,1985.	Narrow , Broad ,Convergent and Divergent	Asserting relevant ideas to the study from the various definitions.
Paul&Elder 1993,Facione1990	View of critical thinking concept by psychologist in defining CT.	
Wood,2002	Critical thinking involves discovering; the who, what, when and how of things…	Concept of CT& Components as can be apply to the study.
Witteen & Blinker, (1993)	CT skills can be improve and boosted by practice.	CT is not inborn…so it can be learn
	The intellectual disciplined process of actively and skill conceptualizing, applying, analyzing, synthesizing, or evaluating, information…..	The draft definition & statement...Operational and widely used…as it is adopted in this study.

2.15 Appraisal of Review of Related Literature

In this chapter, various topics related to the study have been reviewed. It has been noted that; Critical thinking is a rich concept that has been in existence for the past 2500 years. Also, Critical thinking approach to learning has been applied 2000 years ago for the first time by Socrates. He was interested in carefully questioning peoples' claims, seeking evidence and reasons and analyzing concepts to figure out what to believe. Critical thinking involves asking questions, defining a problem, examining evidence, analyzing assumptions and biases, avoiding emotional reasoning, avoiding oversimplification, considering other interpretations, and tolerating ambiguity.

It has been observed there are lacks of consensus on how critical thinking is best defined. According to Reed (1998), the broad concept of critical thinking has brought about different definitions and terminologies by scholars. He says the lack of consensus on the definition of critical thinking and also its terminology has rested in the grounding of various theories and models in two distinct disciplines of Philosophy and Psychology. Philosophy has tended to focus on the nature and products of critical thinking, while psychologists have concentrated on the process of cognition, and the conclusion in empirical research. On the other hand, some educators have drawn on both psychology and philosophy to develop a rigorous theory of critical thinking for teaching reading.

Some scholars use "critical thinking" and "higher order thinking" interchangeably (Halpern, 1993), others make a sharp distinction (Facione, 1990). The relationship among "critical thinking," "higher order thinking," "thinking skills" and other terms such as "informal logic," "informal reasoning," "problem solving," "argumentation," "critical reflection," "reflective judgment," and "metacognition" have further complicated the issue. The Delphi Report(1990) identified critical thinking as "one among a family of closely

related forms of higher-order thinking, along with, for example, problem solving, decision making, and creative thinking" (Facione, 1990, p. 13). Facione, the organizing participant, has pointed out that these terms overlap conceptually and complexly, and the relationships among them have yet to be satisfactorily examined.

The relationship between critical thinking and reading is well established in the literature. Scholars reviewed, point out that reading is more than just saying what is on the page; it is thinking. Moreover, Beck (1989) asserts "there is no reading without reasoning" (p. 677). Also, among those researchers and theoreticians who recognize that reading involves thinking is Ruggiero (1984). He indicates that reading is reasoning. Yu-hui et al. (2010) stated clearly that reading is a thinking process to construct meaning. Comprehension itself has been seen as a critical thinking process. Furthermore, viewing reading as a critical thinking act becomes more tenable when some of the components of the reading process are accepted as automatic and necessary, but not sufficient for constructing text understanding.

Similarly, The reading process has been viewed from various perspectives as a decoding, cognitive, meaning construction process as well as a communication process. Reading comprehension builds on certain elements like linguistic knowledge, background knowledge, making inferences and self regulation of comprehension. The review of literature also revealed that there are different approaches, methods and techniques of teaching reading comprehension and therefore teachers who often confuse these terms must learn to delineate among them. There are six basic approaches of reading comprehension: skills-based, meaning-based, whole language, linguistics, psychological

and the combined approaches while there are four methods of teaching reading depending on the learners, teachers' response to reading and the reading texts.

Moreover, the review had presented a list of comprehension techniques. Studies revealed that some have been employed and their effectiveness in enhancing reading comprehension have been guaranteed. It was gathered that good teachers have tool belts of various instructional methods they use, and adapt to the needs and desires of students in a learner-centred classroom, and two of such tool belts are the cooperative instructional methods: Think Pair Share and Reciprocal Teaching that were adopted and used in this study.

Studies conducted so far in relation to gender differences as they relate to students achievements have been inconclusive as some showed no significant difference between male and female (Sheorey and Mokhtain 2001), Poole (2005), Tunde-Awe (2006) while others revealed that females performed better than males (International Reading Literacy Study and Manitoba Standard Tests 2000, 2004 respectively). It is therefore necessary to find out which gender would do better when these cooperative methods are used during reading comprehension.

On academic ability and performance, Okobia (1994) opines that since children differ in their abilities and performance levels, it is necessary teachers organize learners into small groups in such a way that instruction is provided on small group and at different levels (high, medium and low) that will be of benefit to each student. The present study is different from previous studies in that it seeks to find the effect of critical thinking strategies on reading comprehension performance among Senior secondary school year two in Minna Metropolis, Nigeria.

2.16 Aspects Borrowed From Review of Related Literature

1. Critical thinking ability has been identified as a condition for being educate
2. The immediate evidence that critical thinking ability is an educational goal is its inclusion by many countries as one of their nations education policy. .
3. The quality of thinking of any people affects the quality of their lives, since thinking affects belief and action; also it is possible for people to team to improve the quality of their thinking.
4. Products of critical thinking ability like achievement,
5. Intervention and problem solving methods that is required in critical thinking strategies to aid reading comprehension.
6. The development of any society revolved the ability of its members to think critical. Paul (1993) asserts that the quality of our lives is a product of the thinking we use to create them. In essence, realities of life come like a challenge to members of any society. By implication, we create the life we live through our reasoning.
7. It is expected that proper implementation of critical thinking strategies in secondary schools will put all educated Nigerians at par with their counterparts all over the world.
8. The structural elements of critical Thinking include assumption, ideas and concepts, purpose and goals, issues, implications, consequences and points of view.

CHAPTER THREE
RESEARCH METHODOLOGY

3.01 Introduction

The purpose of this chapter is to provide a description of methodological issues adopted for Data collection, Data analysis procedure are discussed. Specifically the Research design, Population, Sampling and Sampling procedure, explained. Thereafter, the aim and method of pilot study was explored.

3.02 Research Design

Experimental research design of equivalent and randomized pre-test, post-test control group was employed in this study. The design examines the effect of critical thinking strategies on reading comprehension performance of senior secondary school, year two students in Minna Metropolis. Fig 3.1 shows experimental design were experimental group was exposed to treatment and the control group were taught through tradition method.

The Figure 3.1 illustrates the Experimental Research design – showing Pre-test and Post-test treatment.

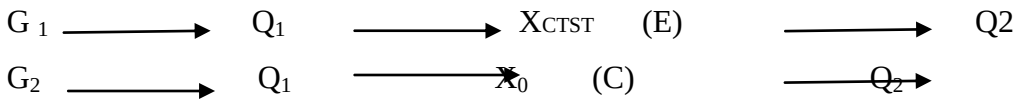


Figure 3.1 above shows that pre –test and post test was administered to experimental group Q1 and Q1 as well as the control group respectively while Q2 is the post test given to both control and experimental group. XCTST (E) is the treatment administered to experimental group. However, in the case of X0 treatment was not given.

This design enables the researcher to find the effect of critical thinking strategies on reading comprehension

3.03 Population.

All the registered year two Senior Secondary School Students of 2014/2015 academic session in Minna Metropolis constituted the target population for this study. According to a source from Niger state Ministry of Education the study area has a total number of 24 public secondary schools, with a population of 11,124 S.S II students. Out of this number 6278 were males, while the remaining 4846 were female students. Table 3.1 is the summary of the total number of SS II students in Minna Metropolis Table 3.1: the summary of SS II students in Minna Metropolis

Table 3.1: summary of target Population

	Number of SS II Students	Total
Male	6278	6278
Female	4846	4846
Total	11,124	11,124

3.04 Sample and Sampling Procedure

One hundred and twenty (120) students were drawn out of the total population. The sampling was down through random simple sampling procedure, according to a published table for determining sample size by Curry, in Yount,(2006). (APPENDIX A) He stated that a study with a target population above 10,000 has an ideal sample size of 1% of the total population. The schools for the study were selected through purposive sampling procedure. Total of Sixty (60) students were assigned as Experimental group and

60 students to Control group. The list of 24 public secondary schools in the study area was entered into the Microsoft Excel office application in alphabetical order and randomized using the Excel's random numbers. The first two schools in the randomized list was tag as E schools (experimental schools) and the last two schools tagged as C schools (control schools).

3.05 Instruments

Two research instruments were developed for this study. They are the Critical thinking Instructional Guides for Teachers (CTIG) and Reading Comprehension Test (RCT) for students.

(a) **The Critical thinking Instructional Guides (CTIG).**

These contain two sets of guides: (involving the two methods: Reciprocal Teaching and Think Pair Share). These guides were sampled lessons for the two experimental teachers during treatment. (Appendix B)

(b) **Reading Comprehension Test** (RCT)

The RCT was a three-passage comprehension achievement tests adapted from Supplementary English Language reader by Farida M 2007,John Oti,2011& George Okon,2009 (APPENDIX C).Passage A contains seven questions, while passage B has eight questions and passage C has eight(8) questions. The RCT serve as pre-test and post-test for the students in the two groups. The total mark obtainable for the pre test and post test was 33 marks. A detail marking scheme is on APPENDIX C.

The researcher was guided by skills involved in these methods

(1) Communicative skills

(2) Critical thinking skills.

To ensure the face and content validity of the instrument, it was subjected to the opinions and suggestions of English Language teachers and Test and Measurement experts at the Ibrahim Badamasi Babangida University Lapai and Ahmadu Bello University Zaria. Based on their suggestions some of the items were expanded and rephrased

3.06 Pilot Study

The Pilot study was conducted with twenty students at Government Secondary School Paiko an outskirts Town from Minna Metropolis, in order to test the reliability and validity of the research instruments of the study. Ten(10) male students and Ten (10) female students were selected using simple random sampling procedure. The main focus of the pilot study was on testing and refining the research instruments.

3.07 Reliability Test

In order to establish the reliability, the test re-test method was adopted for a period of two weeks interval. At the end, the scores of two tests were correlated using Spearman Product Correlation analysis and a reliability coefficient of 0.88 was obtained. Furthermore, to determine the internal consistency of the instrument, the Split-half reliability method was used. The score of the two halves were correlated using Guttmann's split-half and a reliability coefficient of 0.90 was obtained. Thus, the instrument was found to be highly reliable.

3.08 Validity and reliability

The scores from the pilot study were computed using Statistical Package for Social science (SPSS) to test the validity and reliability of the instrument. Slit-half statistic was employed to examine the parts and Spearman Brown coefficient to determine the inter-item correlations. The validity and reliability statistics (table 3.2 below) indicates that Spearman-brown coefficient equal length, unequal length, and Guttman Split-half coefficient were .916, 918 and 910 respectively. These therefore, indicated that the

interaction between the instrument and the participants of the study was highly significant when the instrument was used effectively.

Table 3.2: Validity and Reliability Statistics.

	N of Items	2b
	Total N Items	5
		.844
Spearman-Brown Coefficient	Equal Length	.916
	Unequal Length	.918
	Guttman Split-Half Coefficient	.910

a. The items are: Passage 1, Passage 2, and Passage 3.

b. The items are: Passage 4, Passage 5, and Passage 6.

3.09 Data Collection Procedure

The researcher visited the schools and sought permission of the appropriate authorities for the use of their schools. The study covered a period of eight weeks. In the experimental groups, teachers received training to equip them with the necessary pedagogical techniques for implementing the treatment in the first week. The following steps were taken for data collection:

Step 1: Four schools were selected through purposive random sampling technique

Step 2: From each school 30 students were drawn using random numbers based on student's sex

Step 3 The schools (Experimental and Control) were pre- tested purposely to established equal entry level of students between groups

Step 4: Treatment was administered to the experimental group for 6 weeks. The control group was taught through traditional methods of teaching reading

comprehension- teacher reads the passage explains difficult words as the students answers questions following the reading passage. Treatment in the experimental groups consisted of the following two methods:

- (a) **Reciprocal Teaching Method (RTM) :** Students were taught to question, clarify, summarize and predict in small groups and the whole class.

(b) Think-Pair-Share Method – TPSM : in this method the teacher provokes students thinking with a question or prompt or observation while the students take a few moments to think about the question, prompt or observation. Also using designated partners, students pair up to talk about the answer each came up with. They compare their mental or written notes and identify the answers they think are best, most convincing, or most unique.(Detail lesson plan on Appendix).

3.10 Treatment and treatment Procedures

The treatment was composed of six passages of different length and difficulty levels. The first week of the treatment was being dedicated to pre- test and subsequent weeks for treatment The final week was dedicated for post test. The services of the teachers in the experimental and control schools were sort for the exercise. The teachers were intensively oriented on how to handle the instrument for data collection in both experimental and control classes.

3.10.1a Day one : Interaction Session

The interaction session with the passage aims to draw students attention for the task and activities in the passage, connect students prior knowledge with the theme of the reading pessage; build a bridge between the students knowledge and interest and the reading passage. The interaction session involve the following activities : (a.) Following

discussion, suggest four possible sources of information and have them decide which would be the most reliable.

(b) Using pair and group task

(c.) After a discussion of the importance of knowing the source of information in written passage, students work on a Who Said?

(d.) Students then share results, giving reasons why the sources they chose are credible. (Details on Appendix E)

3.10.1b. Day Two Reading and Discussion Session

The second day was the reading and discussion activities. The class activities include the following procedures :

(a) Reading activities: teacher reads the passage aloud, naturally, observing all punctuation marks.

(b) Using pair and group tasks; dealing with mixed ability groups

(c) Teaching to facilitate literal and inference and Critical and evaluative teaching

(d) Critical and evaluative reading teaching steps through Reciprocal teaching methods. (Discussion steps are on appendix E)

3.10.1c Third day: Paired reading session.

The third day was the paired reading and discussion activities day. After the usual protocol the students were engaged in :

(a) Grouped for reading and discussions on the passage following Think- Pair-Share-Method steps (details on the appendix)

(b) After each reading the group discusses the passage interactively

(c) The group discusses the questions on the passage

(d) The reciprocal teaching method steps activities and other reading exercises

3.10.1d Fourth day: Assessment day.

This was the last day of the weekly exercises with a given passage. In this session, the teacher briefly reviewed the activities in order to get the students warmed for the weekly assessment. :

(a) Procedures for making judgment about the credibility of source of information/writers explain for the first week and critical reading activities for the subsequent weeks

(b) Teacher leads the students to perform more reading activities

(c) The class activities and group activities reviewed

(d) These activities continued for six weeks, one passage per week.

The final assessment was the post test. However, the control was given assignments after every week on the passages taught. After the treatment for the experimental group, post test was administered to experimental and control groups. The post test guide the study on the effectiveness of critical thinking strategies and the teaching methods. Detailed raw score on the two groups are on the appendix.

3.11 Data Analytical Procedure

Descriptive statistics (mean and standard deviation),and independent t-test of independent samples were the statistical tools used to analyze the data obtained from the respondents in the field, while, independent sample t-test was used to test the hypothesis at significant level of 0.5% (p-0.05).The level of significance was the basis for which the hypotheses were accepted or rejected, In line with most research in the social and human sciences, the probability level selected for this study is p = .05 at 95% level of confidence. Gay and Airasian (2003: 450) assert that a test of significance assists in making a decision

whether to reject the null hypothesis or accept, and in concluding that the difference is significantly greater than that of a chance. The Statistical Package for the Social Sciences (SPSS) version 19.1 was used for tests of significance as it contains the entire programme needed for the analysis of the results of this study .

3.12 Scoring Procedure

The Reading Comprehension Test (RCT) was a three-passage comprehension achievement tests. The participants read the passage and answered 23 questions based on the passage. Each of the 23 questions carried 1 mark except questions 10.1218 and19 Questions 21 carried two marks while questions 22 and 23 required longer, more variable answers, with total marks of 3 and 4 respectively. The total mark for the test was 33. A set of guidelines was set up before to identify acceptable responses in each of those two cases, and were marked accordingly. The comprehension test will be marked by a research assistant. The detailed Reading Comprehension Test, Marking Guide, Students Marked Scripts are on the Appendix.

CHAPTER FOUR

DATA ANALYSIS RESULTS AND DISCUSSIONS

4.1 Introduction

This chapter presents the analysis of data collected and the findings based on the research questions and hypotheses stated in Chapter One. The students' scores were analyzed using independent t-test for the two groups (Experimental& control).The mean score gains of the two groups were used as pre-test and post-test scores to determine the effect of the treatments. All the hypotheses were tested at 0.05 level of testing hypothesis.

4.2 Section one: Pre-Test and Post test Main Data Analysis

The following is the summary of the raw scores and mean scores of the experimental and control group.

Table 4.1 The summary of the Pre and Post test Total scores and Mean scores of the sample schools. (Experimental &Control)

Experimental Schools	Pre-test Total Score	Pre test Mean	Post-test Total Score	Post test Mean
Hudal Islam Secondary	349	11.63	627	20.97
M.B.Girls Science Secondary	353	11.76	645	21.43
Control Schools				
G.S.S Minna	338	11.26	475	15.33
Girls Day Secondary	343	11.43	425	14.17

The results presented on table 4.1 above showed that male experimental group had a mean of 20.97 while female experimental group had a mean of 21.43 there was no significant difference in the achievement test score between the two groups at post test. However, at pre test level male control group had a total of 338 as raw scores and mean score of 11.26 The female control group had a total of 343 as raw scores and mean score of 11.43 This implies that the groups are equivelenteivalent at least, at entry level of the

reading comprehension test. The poor outcome of students at the pre- test as shown by the result was attributed to two factors : the reading demands of this exercise and the traditional methods being used to by students in answering reading comprehension passages also how students read before this study. These problems were however remedied by the treatment- interaction between the researcher and students. Significant improvement was also noticed in the reading comprehension of the control group who were taught in the conventional methods.

4.3 Testing of Research Question

This section presents the data of the responses to research questions one to Four. These research questions were subjected to descriptive statistic –mean and standard deviation.

4.3.1 Research question one

What is the effect of Critical thinking strategies on reading comprehension performance among senior secondary school students taught how to make judgments about source credibility and those not taught in Minna Metropolis?

To determine the effect of critical thinking strategies on reading comprehension performance among the students in the experimental group and those in the control, reading comprehension test was administered as pre-test and post –test to the students. The following descriptive statistics; mean and standard deviation were obtained. Table 4.2 illustrates the Mean scores and standard deviation of students in experimental and control group.

Table 4.2 Shows the Mean Scores and Standard Deviation of Students in Experimental and Control Group

Group	N	X	Std deviation	Std error
Experimental	60	21.20	4.153	.536
Control	60	14.75	3.545	.458

N: Number of respondents, X: Mean, Std: Standard deviation, Std: error mean

Table 4.2 above shows that at post- test the experimental group had a mean score of 21.20 and standard deviation of 4.153. The control group had a mean score 14.75 and standard deviation of 3.545. The experimental group has 7.95 mean difference. The difference between the mean scores of the control and experimental group is in favour of the experimental group. The data presented above confirm that the experimental group benefitted from the treatment activities. During the treatment the group members were able to : Follow both class and group discussion. For instance, they were asked suggest four possible sources of the information when they were asked to tell the credibility of the source of information. The following sentence is a sample of student's activities during the treatment:

(a) "I've heard that Christmas was no longer going to be a school holiday"…. Students response was 'Who said so?") when ask why it matters who said the statement to you. After a discussion of the importance of knowing the source of information in evaluating it, students work on a Who Said? Students in the experimental group were able to determine credibility of source after sharing results of group discussion on topic and giving reasons why the sources they chose for their answer is credible.

(b) The response of the students to questions initially was poor but after the class activities and subsequent class work, it was noted that the students who performed very low at pre-test had shown significant improvement in their response to questions on making judgment about source credibility.

4.3.2 Research Question two

How does the effect of Critical thinking strategies on reading Comprehension Performance of Male senior secondary school students taught the strategies of Distinguishing fact from opinion differ from those not taught in Minna Metropolis?

To determine the effect of critical thinking strategies on reading comprehension performance, the reading comprehension test was administered as pre-test and post –test on male students in experimental group and those in control group. Table 4.3 shows the descriptive statistics obtained as answer to the research questions:

Table 4.3 Performance of male students in the experimental and control group.

Group	N	Mean	Std deviation	Std error mean
Male experimental	30	20.97	3.746	.684
Male control	30	15.33	2.832	.517

N: Number of respondents, X: Mean, Std: Standard deviation, d: Mean difference

The analysis of table 4.3.2 above; the control group had a mean score of 1 5.33 and standard deviation of 2.832 while the standard error mean is .517 at post – test. The experimental group had a mean of 20.97 and standard deviation of 3.746 and .684 as standard error mean was recorded at post-test. The experimental group has 7.64 mean differences between the mean scores of the control in favour of the experimental group

The findings in 4.3 appeared that the performance of students in experimental group have significantly changed after treatment. It is reasonable to assume that distinguishing facts from opinion as a variable of critical thinking strategy of teaching reading comprehension has significant effect on performance of the students. The extract below presents the responses of students when they were presented with the following statements on whether they are facts or opinion:

(a) "All Nigerians are interested in football"

(b) "Sixteen percent of those surveyed prefer football to handball.".

The student's response was: Statement (a) is a general statement because of the word ALL hence it is opinion. While statement (b) is a fact, the difference between facts and opinions is that facts can be proved and opinions cannot be proven.

(b) The more general a statement, the more likely it is to be an opinion. (e.g all teenagers like potato chips.)

(c) The more specific a statement, the more likely it is to be a fact (Sixty-six percent of all teenagers eat a bag of potato chips a week.).

The students were also able to state that; a. Adjectives about qualities (nicer, finer, etc.), qualifying expressions (l believe, in opinion, usually, probably), and words that indicate a future action or obligation (should, must, ought) are often contained in opinions.

(d) Emotional language is found more often in opinions.

In view of the above responses and analyses by the students on distinguishing facts from opinion by the experimental group indicated better instructional gains. In contrast, the control group had not shown much gain at the post – test because they were not exposed to treatment lessons as administered to experimental group. Hence, it is clearly evident that critical thinking strategies have effects on distinguishing facts from opinion in the reading comprehension performance in secondary schools.

4.3.3 Research Question three

How does the effect of critical thinking strategies on reading comprehension performance of Female senior secondary school students taught Detecting emotionally laden words differ from those not taught in Minna Metropolis?

To determine the effect of critical thinking strategies on reading comprehension performance, the reading comprehension test was administered as pre-test and post –test on in the experimental group and the control group students. The descriptive statistics; mean and standard deviation were obtained to answer the research questions as presented on Table 4.4 below.

Table 4.4 Mean Scores and Standard Deviation of Female Students in Experimental and Control Group.

Group	N	Mean	Std deviation	Std error mean
Male experimental	30	21.45	4.546	.836
Female control	30	14.17	4.103	.749

*N: Number of respondents, X: Mean, Sd: Standard deviation.

From the analysis on table 4.3.3 above, the female experimental group had a mean score of 21.45 and standard deviation of 4.546 at post-test. The female control had mean of

14.17 and standard deviation of 14.17 was recorded at post test. However, the difference between the mean scores of the control and experimental group is 7.26 in favour of the experimental group. The result indicated the effectiveness of the treatment lessons on Detecting emotionally laden words in reading comprehension, which were given to experimental group after the pre –test. The result also indicated that there was significant difference between the two groups at the post- test. It could be asserted that the improved post- test performance of the experimental group can be attributed to the treatment given to the group. To confirm the above descriptive statistics results, during the treatment female experimental group was able to differentiate between;

(a) Synonyms, in such as crowd and mob, residence and home, slender and skinny, whose different connotations can be elicited from students. Explain that being aware of the use of such language is important in understanding and evaluating what we read.

(b) Discuss the reasons for the authors biased writings on account of emotionally laden words.

(c) Students ability to work independently on passages to answer questions on the reading assignment given correctly.

It could be deduced that the performance of the experimental group had improved during the post- test due to the strategies employed in teaching reading comprehension passages with emotionally laden words.

4.3.4 Research Question four

What is the effect of Critical Thinking Strategies on Reading Comprehension Performance among genders (male and female) senior secondary students in Establishing Evaluation criteria before making judgments in Minna Metropolis?

To determine the effect of critical thinking strategies on reading comprehension performance among gender (male & female).The reading comprehension test was conducted as pre-test and post –test for the experimental groups Students. The mean and standard deviation obtained were used to answer the research questions as presented on Table 4.4.

Table 4.5 Mean scores and standard deviation among genders (male and female) in experimental.

Group	N	Mean	Std deviation	Std error mean
Male experimental	30	20.97	3.746	.684
Female experimental	30	21.43	4.576	.836

*N: Number of respondents, X: Mean, Std: Standard deviation.

Table 4.3.4 shows that; the male experimental group had a mean score of 20.95 and standard deviation of 3.746 at post-test. The female experimental group had a mean score of 21.43 and standard deviation of 4.576 at post-test. However, the difference between the mean scores of the male and experimental group is only 0.49 in favour of the female experimental group. The marginal difference of 0.49 between the tw group indicated that there is no significant difference between the two gender based experimental groups.

The positive results recorded for the experimental group in relation to the findings on Establishing Evaluation criteria before making judgment in reading comprehension, could

be attributed to the critical thinking strategies and critical reading activities during treatment.

4.4 Testing for Hypothesis

The hypotheses were formulated to determine the significance of the investigated variables of the study on the effect of critical thinking strategies on reading comprehension performance of senior secondary school, year two students in Minna Metropolis. were tested in t They consisted of four (4) null hypotheses tested. The hypotheses tested using independent t-test statistics were stated as follows:

4.4.1 Hypothesis One

H_{01}: There is no significant difference between the reading comprehension performances among of Male S.S II Students expose to critical thinking Strategies in making judgments about the credibility of the writer/source of text and those not expose. Table 4.6 presents the t- test for equality for the hypothesis

Table 4.6: Testing for Hypothesis One

	N	Mean	Std. deviation	df	t-cal.	P	Decision
Experimental	60	21.20	4.153	118	9.151	0.000	Sig.
Control	60	14.75	3.545				

Source: SPSS Result and Author's Field Survey, 2015.

From the above result of analysis presented, it shows that the probability calculated is less than 0.05 at 5% level of significance. The t-calculated is 9.151 and at 58 degree of freedom using two tailed significant level. The rule of thumb guiding the acceptability of a

particular hypothesis in t-test is that when the t-calculated is greater than 0.05 the null hypothesis is rejected. On the other hand if the t-critical calculated is greater than the t-calculated, the null hypothesis is accepted. Since the the t-calculated is greater than 0.05 the null hypothesis that "There is no significant difference between the reading comprehension performances among S.S II Students expose to critical thinking Strategies in making judgments and those not expose" is therefore rejected. The test revealed that there is significant difference between the reading comprehension performances of S.S II Students exposed to critical thinking Strategies in making judgments about the credibility of source of information/writer and those not exposed.

4.4.2 Hypothesis Two

H_{02}: There is no significant differences between the reading comprehension performances .of Male S.S II Students exposed to critical thinking strategies Distinguishing fact from opinion and those not expose.

Table 4.7 : Testing for Hypothesis Two

	N	Mean	Standard deviation	df	t-	p	Decision
Experimental	30	20.97	3.746	58	65.70	0.000	Sig.
Control	30	15.33	2.832				

Source: SPSS Result and Author's Field Survey, 2015.

From the above result of analysis presented, it shows that the probability calculated is less than 0.05 at 5% level of significance. The t-calculated is 6.570 and at degree of freedom 58 using two tailed significant level. The rule of thumb guiding the acceptability of a particular hypothesis in t-test is that when the t-calculated is greater than 0.05 the null hypothesis rejected. Since the t-calculated is greater than t-critical, the null hypothesis that

"there is no significant differences between the reading comprehension performances of Male S.S II Students expose to critical thinking strategies in Distinguishing fact from opinion and those not expose" is therefore rejected. The test revealed that there is significant differences between the reading comprehension performances of Male S.S II Students expose to critical thinking strategies in Distinguishing fact from opinion and those not exposed.

4.4.3 Hypothesis Three

H_{03}: There is no significant differences between the reading comprehension performances of Female S.S II students exposed to critical thinking strategies in Detecting emotionally laden words and those not expose. Table 4.3 presents the result of hypothesis three below

Table 4.8: Testing for Hypothesis Three

	N	Mean	Standard deviation	df	t-	p	Decision
Experimental	30	21.43	4.576	58	6.476	0.000	Sig.
					6.476		
Control	30	14.17	4.103				

Source: SPSS Result and Author's Field Survey, 2015.

From the above result of analysis presented, it shows that the probability calculated is less than 0.05 at 5% level of significance. The t-calculated is 6.474 at 58 degree of freedom using two tailed significant level. The rule of thumb guiding the acceptability of a particular hypothesis in t-test is that when the t-calculated is greater than 0.05 the null hypothesis is rejected. Since the t-calculated is greater than, 0.05 the null hypothesis that "there is no significant differences between the reading comprehension performances of

female S.S. II students exposed to critical thinking strategies in Detecting emotionally laden words and those not expose" is therefore rejected. The test revealed that there is a significant difference between the reading comprehension performances of S.S II students exposed to critical thinking strategies in Detecting emotionally laden words and those not exposed to treatment.

4.4.4 Hypothesis Four

H_{04}: There is no significant differences between the reading comprehension performances of S.S II students among male and female expose to Critical Thinking Strategies in establishing evaluation criteria before making judgments .

Table 4.9: Testing for Hypothesis Four

	N	Mean	Standard deviation	df	t-	p	Decision	
Male Exp.	30	20.27	3.746	58	-432	2.045	6.000	NS
Female Exp.	30	21.43	4.576					

Source: SPSS Result and Author's Field Survey, 2015.

From the above result of analysis presented, it shows that the probability calculated is less than 0.05 at 5% level of significance. The t-calculated is - 432 and at 58 degree of freedom two tailed significant level. The rule of thumb guiding the acceptability of a particular hypothesis in t-test is that when the t-calculated is greater than t-critical, the null hypothesis retained. On the other hand if the t-critical calculated is greater than the t-calculated, the null hypothesis is accepted. Since the the t-calculated is less than 0,05 the null hypothesis is retain, that "there is no significant differences between the reading

comprehension performances among male and female S.S II students in experimental groups exposed to Critical Thinking Strategies in establishing evaluation before making judgments " is therefore retained.. The test revealed that there is no significant differences between the reading comprehension performances among gender of (male and female) S.S II students exposed to Critical Thinking Strategies in establishing evaluation before making judgments.

4.5 Summary of Major Findings

The overall findings of this study indicated that Critical thinking strategies had profound effect on reading comprehension performance of students in the experimental group because :

1 The mean score of experimental group was found to be greater than the mean scores of the control groups at post test. See Table 4. 2 The results showed that the experimental group students improved greatly on the reading comprehension test scores after receiving the treatment lessons for 6 weeks. The improvement made by the students stresses the importance of Critical Thinking Strategies on reading comprehension performance. Despite the short period of treatment, the experimental group improved significantly in both their strategy use and reading comprehension performance.

2 Critical Thinking Strategies on reading comprehension teaching and learning process had significant effect on among SS II students reading comprehension performance. The students were taught reading comprehension through Think-pair-share- method and Reciprocal teaching method (TPSM & RTM) as instructional method. The new ground thrown open by this study is the pedagogical

potentialities of TPSM & RTM in developing critical thinking capacity of students and improving their reading comprehension performance. These methods have been acknowledged in Europe, U S and Asian countries. However in Nigeria, many secondary schools are still engrossed in traditional methods in teaching reading comprehension.

3 The study has some practical implications for second language (L2) reading comprehension instruction in Minna Metropolis and other educational settings that share similar characteristics. This study showed that critical thinking strategies on reading comprehension can have some beneficial effect on students' performance in reading comprehension. Therefore, it can be hypothesized that students with low-proficiency level in reading will benefit from an explicit strategy instruction that shows them how and guides them to use appropriate strategies in different contexts. The students were able to self-monitor their reading comprehension process .

4 Critical thinking strategies had significant effect on reading comprehension performance of Male and female students The result in Table 4.5 and 4.6 revealed that the experimental group performed better than the control group which attested the fact that treatment activities included in the treatment lessons were effective. This is evident from procedures and learning activities undertaken by the experimental group. Table 4.7&4.8, clearly illustrates the difference between the performance of the experimental and control group.

4.6 Discussions of Major Findings

The fact that teaching/learning of reading comprehension is crucial to academic achievement at all levels of education makes research into ways to improve reading

comprehension performances through critical thinking most imperative. Creativity and imagination are what often referred to in the literature as critical thinking. This is in line with theoretical contentions which indicate that Critical thinking can be taught as a process of thinking without a single solution to a problem.

The results and findings of research question one proves that students in the experimental group have significant improvement in reading comprehension than the control group. The result further shows the effect of the treatment given to the experimental group on knowing facts, understanding concepts, application, analysis, synthesis and evaluation. These are all in line with Bloom's (1956) taxonomy in critical thinking which covers the full spectrum of higher order thinking. The critical thinking strategies used in treatment lessons had positive effect on the reading performance of the experimental group. This supports the quantitative result in terms of the first question that proves the effect of critical thinking strategies on reading comprehension performance among senior secondary school students as indicated from the descriptive and inferential statistics as explained on the testing of hypotheses section.

. After scoring the post – test, scores were subjected to descriptive and inferential statistics of independent t-test. There was significant and meaningful difference between experimental and control groups, but there is no difference between male/female experimental groups. In addition there was not much significant interaction between "proficiency" and "Gender" meaning that the proficiency factor has the same effects upon male and female groups..As table 4.4.5 illustrates there is a significant difference between critical and non-critical groups. These results reject the first null hypothesis and confirm the effect of critical thinking strategies on the students' reading comprehension

performance. This finding harmonized with Facione (1998) that there is a "significant correlation between critical thinking and reading comprehension. Improvements in one are paralleled by improvements in the other. "This finding also supported by (Kurland, 2006) stated, In order for students to read critically they need to think critically, as well. Similarly, Thompson (2010) supported the view that gender had no predictive value of critical thinking or learning style. Pienaar(2000) conducted a South African study of adolescents' critical thinking in the context of political issues, and found that gender, had no significant relationship with critical thinking ability.

The statistical analysis on comparing the mean scores of the experimental and control groups on the critical thinking posttest, however, indicate difference between the two groups. As table 4.2 and 4.3 in the above section shows the experimental and control groups' mean scores on the post - test were 21.20 and 20.97 respectively' This amount of increase in the mean scores of experimental group in the posttest—15.33 to 20.97--indicate the trend in the improvement of students' critical thinking after the treatment period. New perspective discovered in this study was the keen participation of the students in learning activities occasioned by the critical thinking strategies used in the study. This justification indicates that the application of the critical thinking strategies which reveal more significant gain in reading comprehension performance of students in the study.

The second research question aimed at investigating the effect of CT strategies on male student's performance in reading comprehension and their ability to distinguish facts from opinion. The finding illustrated the fact that male secondary students' performance in reading comprehension after treatment is similar to female students of similar level as in table 4.5 This suggests that critical thinking ability do not vary across different gender

level. This verdict is in accordance with findings of Kuhn (1992), Semeric (2010), and Myers and Drey (2006), in view of the fact that modern life has made females and males students to have almost identical level of critical thinking (CT) abilities to get through everyday difficulties by applying their CT skills regardless of their sex. This is more evident in academic settings, (especially mixed gender secondary schools), where developing higher order thinking abilities such as CT is an indispensible part of the agenda of higher education for all students irrespective of r gender.

Hypothesis three and four were tested for differences in performance of students in female students and performance across gender (male and female) on the effects of critical thinking strategies on reading comprehension performance. The result showed no significant differences thereby retaining the hypotheses. The outcome of the test implies that gender difference has less impact on student's performance in reading comprehension especially when critical thinking strategies were used. This is peculiar to the study because of the features structure and composition of the schools under study. In comparison with studies that reported significant differences.

The data analysis on the effect of critical thinking strategies using Think-pair-share-method (TPSM) on SS II students reading performance in Minna revealed that the students exposed to this method performed better than those in the conventional instructional method. The better performance of TPSM group could be due to the active participation of the students in the reading process occasioned by the method. The TPSM is a learner-centred method and as Roth (1992) in Udosen (2006) observes, learner-centred methods make room for teacher-student, student-student and student–text interactions which enhance understanding. This also confirms the assertion of Afe (1995) that critical

thinking instructions using Think-Pair Shared Method encourages active participation and active interaction among learners and promotes skills development and the use of learners initiatives. Students were taught the why, how and when of these techniques. Since these techniques involve interaction and conversation between pairs of students, the students had greater involvement in the reading process, unlike in the Conventional Instructional group where reading instruction was followed immediately with evaluation.

According to Obah (2009) and Stauffer (2005), the Conventional method results in rote learning and students are passive recipients, non-thinking readers instead of being thoughtful readers**.** The result also supports Palincsar (1998) and Woolfolk (2006) assertion that students learn more when they engage in talks that are interpretative, analytical and explanatory. This suggests that this method can enhance students' reading performance if it is properly used in schools. The uses of prediction, question generation, summarization and clarification have positive impact on reading comprehension performance of students. This corroborates the observation of Mayfield (2000) that the use of Reciprocal Teaching Methods (RTM) helps students to check their own understanding of reading tasks by generating questions as aids to understanding.

One important ground breaking finding of this study is the enhanced performance of experimental group where all members of the group had the opportunity to take part in the reading process, especially the quiet and shy ones who are often neglected in traditional reading classes. It then implied that students need to share and discuss what they read, what they have read, and what they want to read. Based on these submissions, it can be inferred that the two critical thinking instructional methods (TPSM&RTM) used in this study are effective instructional methods of teaching reading comprehension in schools.

Furthermore, it was observed, students in the experimental group had better grasp of the passages used because they become inquisitive and analytic. Every effort students made including being involved in reading materials, searching different sources, sharing opinions with others, cooperating in the classroom, and taking part in the argumentative discussions triggered their thinking skills. These thinking skills referred to as cognitive abilities led to the improvement of reading comprehension performance.

Recent trends within the domain of reading comprehension have led to an increasing emphasis on the role of problem - solving technique that supposedly enables the student to identify, clarify, evaluate and solve perplexities that arise in reading (Waters, 2000). Indeed researchers agreed that problem-solving, creativity, and imagination of one's comprehension processes are critically important aspects of skilled reading. Such creativity and imagination are what often referred to in the literature as critical thinking, which can be thought as a process of thinking without a single solution to a problem, determining the value of an idea, and making judgments about the truthfulness of the statement or answers to a problem. In conclusion, it can be argued that critical thinking strategies play a central role in reading comprehension. It is necessary for students to read because achieving good grades in examinations, higher academic learning and success in life depends on reading and comprehension of situations.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Introduction

This chapter summarizes the findings of the study, Conclusion and it provides recommendations. The chapter also highlights on implications for the study and finally suggests areas for further studies.

5.2 Summary of the study

The purpose of the study was to explore the effects of critical thinking strategies on the reading comprehension performance of SS II students in Minna Metropolis, Nigeria. Reading is a process of constructing meaning through the dynamic interaction of the reader, text, and the context of reading situation that results in the acquisition of knowledge, experience or information. Thus, reading comprehension was directly linked with a variety of critical thinking strategies for teaching and learning reading comprehension in the study.

Most secondary school students in the study area were able to identify individual words and facts but were unable to combine the information in the text with the previously acquired information .This inability to integrate ideas was accompanied by an inability to draw logical inferences and the inability to check ideas while reading to see if the ideas contradicted on another, these problems generates the research questions for this study. Among the specific objectives of the research was the investigation of effects of critical thinking strategies on performance in reading comprehension among senior secondary school year two in Minna Metropolis.

Other variables considered were differences gender (male and female). Four research questions were asked and four hypotheses were generated from the research questions. The experimental research design on experimental and control groups was carried out to find answer to research questions raised.

The study area had a population of 11,124 SS II students for 2014/ 2015 academic year. 120 students were sampled for data collection. Microsoft excel random numbers were employed to sample both the schools and the subjects of the study. Thirty (30) students from four (4) schools were sampled through simple random and purposive sampling techniques was used for the study. The sampled students were grouped into experimental and control groups respectively. This is in line with the view of Curry (2006) that sample size can be randomly and purposively sample from the target population. Four 4 research personnel and 4 instructors each of the two groups of schools(experimental and control).Research a assistances supervised the activities of the instructors and oversaw the conduct of both pre-and post – test assessment, The following are summaries of findings based on the four research questions asked :

5.2.1 Finding Based on Research question one

1. Students learn critical reading strategies and how to apply them in reading through explicit instructions. Thus There was significant difference in reading comprehension performance among the experimental group students exposed to Critical thinking instructional strategies and those in the control group that were taught through traditional teaching methods.

2. Teachers read the passage aloud as well as the students during general class lessons and group activities. It was discovered that students with low-proficiency level in reading have benefitted from an explicit strategy instruction that shows them how and guides them to use appropriate strategies in making judgments about credibility of source of information in a reading text in different contexts. Generally the reading comprehension performances of students in the experimental groups generally improve after treatment which was notice from the post test score of the group.

5.2.2 Finding based Research Question Two

1. The result of the findings indicated improvement in the reading performance of male students in the experimental than male students in the control groups after the post test.
2. The Think-Pair-Share Method, the Reciprocal Teaching Method used in the treatment lessons had encouraged active participation of students in class and group activities. The improved performance of male experimental group noticed after the treatment could be attributed to the methods used.
3. Critical thinking strategies employed motivated the dedicated participation during the study.

5.2.3. Findings Based on Research question Three

1. It was discovered that the impact of critical thinking on reading comprehension had significant impact on student's literal, inferential and critical levels of reading comprehension. The activities have increased the ability of students in detecting emotionally laden words.

2. There was significant difference between the reading comprehension performances of female S.S II students in the experimental group that are exposed to critical thinking strategies in Detecting emotionally laden words and the female control group.

3. The critical thinking strategies encouraged students to monitor their comprehension significantly well in literal, inferential and critical levels of reading comprehension.

4. Students were empowered to read extensively and make efforts to dialogue with what they have read their peer groups both during and after school period.

5.2.4 Finding Based Research Question Four.

1. The outcome of the reading comprehension test conducted at the post test stages has implied that gender has no much impact on the performance of secondary school students. Two reasons could be responsible for this better performance. One is the use of the four techniques which students in the groups learnt and used during the reading process.

2 There was no significant difference between the reading comprehension performances of male and female experimental groups exposed to Critical Thinking Strategies in establishing evaluation before making judgments. It was discovered from the result that there was significant effect of the CTS using the Reciprocal teaching method and Think-pair- share method (RTM&TPSM) on reading performance of students when compared with other Conventional teaching methods.

3 The experimental group students learn to communicate effectively, listen to, share, build up and exchange ideas, thoughts, opinions and feelings with one another through the

discussion activities embedded in the treatment lessons this makes the lessons interesting.

4. Similarly, the experimental group students were able to first identify the kind of information that is significant enough to provide the substance for answer to a particular question on a reading text.

5. It was observed the clarifying technique enables the teachers and students during the lesson understand the reason for text difficulty, the effect of such impediments to comprehension and the necessary measures to restore meaningful learning

5.3. Conclusions

This study have established the superiority of critical thinking Instruction using Reciprocal Teaching and Think-Pair-Share Methods Reading comprehension over the Conventional Instructional Method, irrespective of gender of secondary school students le Also, it was established that the three levels of reading comprehension can be better influenced when learners are exposed to critical thinking skills such as analysis, synthesis application of concepts to background knowledge of students. Also, the findings revealed critical thinking strategies had significant effect on students reading comprehension performance than the traditional methods of teaching reading comprehension in Minna Metropolis.

The pedagogical implications of these findings are that English teachers can put the findings to good effect by making use of all the techniques used in this study to bring meaning to reading activities in schools. Moreover, teachers should use pairing and grouping to teach and incorporate these techniques in teaching reading instructions in schools. In addition, findings have revealed that gender had no significant effect in the use

of methods in teaching reading. This implies that more studies are needed to confirm or repute which sex performs better using any of the methods.

5.4 Recommendation.

The result of the study can inspire the teachers, students, syllabus and material designers to include critical thinking strategies both in students' text books and in teacher training courses. It is important to note that when critical thinking strategies are used appropriately in reading comprehension they are without doubt indispensable to comprehension

The following are some recommendation remediation to critical thinking instructional strategies which could enhanced reading comprehension performance in secondary schools

- activating background knowledge: this helps students recall and connect what they already know about what is being read, which in turn almost always facilitates understanding, stimulates motivation and enhances attention. This is to say that "the interaction between the reader and the text is the foundation of comprehension" (Cooper 2000).

- inference: it assists students to understand what is not explicitly stated in the text.
- re-reading: it increases exposure to the text which in turn enhances comprehension.
- self-questioning: it helps students in the processing of what is being read.
- monitoring comprehension: it is important that students are to able monitor their understanding of what is being read. Knowledge of other strategies may not do students any good if they cannot track their understanding while reading and apply strategies to clarify reading failure.

- identifying main ideas: in reading to learn from expository texts it is critical to grasp important information and distinguish primary information from the myriad of details in a text.
- summarizing: this relies on main idea identification and enhances students' writing skills.

It is important to note that the choice of strategies depends on the type of text being read. The two basic types of texts are expository and narrative.

English Language Teachers: 1. Concerning teachers, as they have an enormous responsibility in the classroom, it is crucially important that instead of being exam-oriented and producing learners who would obtain good results on their exams they be more flexible toward teaching, and they should consider students' attitudes, interests, and abilities encouraging them to use their thinking and express themselves critically and creatively.

2 Teacher-directed text comprehension can be improved by instructions that helps readers use specific comprehension strategies, and students should be taught how to use the comprehension strategies (Isuigo Abanihe,1991) It is recommended that English Language teachers could employ the Reciprocal Teachlng Methods and Think Pair Share Methods (RTM&TPSM) to facilitate critical thinking in reading instruction as well as students reading comprehension levels.

3 The three groups of readers in a typical English Language class low-readers, poor readers, good readers. English teachers are advised to employ the pairing or grouping techniques by employing the Reciprocal Teaching method or the Think-pair-share

method to teach these categories of readers. This would greatly help the learners in acquiring the literal, inferential and critical skills of reading. It is also recommended that teachers should utilize pictorial materials embedded in most language text books to enhance students' inferential skills.

4. It is recommended that English teachers should regularly attend workshops, seminars, refreshers courses where they could be intimated with current methods of teaching reading like the Critical Thinking Strategies, Reciprocal Teaching .Think Pair Share Methods and other methods of teaching reading comprehension.

Teacher Trainers The universities and colleges of education might need to modify their teacher training programmers' to re-orientate teachers on critical thinking strategies and toward learner centred methods like Reciprocal Teaching method and the Think-Pair-Share method as adopted and used in this study. This would take care of the individual differences and the different reading abilities of learners.

Textbook Writers Although textbook writers have really improved over the years, they could still make their English textbooks more explicit by creating some reading sections where critical thinking skills are explicitly stated. Techniques that could facilitate students CTS skills in reading comprehension could be written practically by inserting pictorial materials in their texts.

Publishers It is recommended that publishers should encourage good textbook writing that would take care of the different reading abilities of learners and the use of the different techniques used in this study.In the same vein, existing recommended English textbook should be reviewed to include reading activities involving critical thinking activities; especially the Reciprocal Teaching and Think-Pair-Share techniques.

Curriculum Planners It is recommended that curriculum planners may have to revisit the English curriculum with a view to paying attention to more critical thinking strategies instructional that could help facilitate Reading comprehension in English Language teaching and learning.

Government It is recommended that the government at all tiers should supply schools with qualified teachers to teach read instructions, and make available reading materials to federal and state ministries of education in order to enhance reading performance of learners in schools.

5.5 Pedagogical Implication

The study showed that teachers should be more flexible toward teaching critical thinking skill through reading comprehension. They should consider students' attitudes, interests, and abilities encouraging them to use their thinking and express themselves critically and creatively. Secondly, the application of thought provoking discussions after reading comprehension passage shows the importance of domain knowledge in critical thinking. As it is stated in ADSA (2006, p.10), "Familiarity with the issue is the key aspect of preparation for reading … ―When the topic was introduced to the students they seemed to be unable to discuss on the topic but after the teacher has relate topic to their prior knowledge they were more eager to participate in the discussion, present brilliant ideas, pose clever questions, and show great ability in critical thinking.

The third side addressed in this study is the Searching for information would certainly encourage students think independently. The other advantage the students gained from the program was their participation in speaking during the class and group discussion sessions, so that even the reticent students were willing to express their own ideas. A typical English

reading lesson in the study area goes through pre-, during-, and post-reading procedures, in which students are given a passage to read. Students may read it silently, take turns to read it aloud or the teacher reads it to them after which they do various kinds of comprehension-testing exercises that implicitly require a limited number of reading strategies (e.g. skimming and scanning) which are not explicitly taught. This approach to teaching reading actually tests rather than teaches comprehension. It is important to note that students do not naturally acquire the target strategies through implicit learning. That is, students learn reading strategies and how to use or apply them in reading through explicit instruction. Teachers need to make the comprehension process more visible; in effect, teaching comprehension is all about making the comprehension process more visible and strategy instruction facilitates this.

English as Second Language teachers in primary and secondary schools and colleges might need to integrate explicit strategy training into the regular reading instruction procedures as used in this study. For instance, teachers can embrace a teaching method that involves a comprehension task and strategy application and assessment, with emphasis on strategy assessment. This pedagogy might help in increasing students' strategy use and ultimately facilitate their competence in using strategies in various situations and may increase their self-confidence, motivation and feelings of self-efficacy.

Research findings suggest that learners who are competent in metacognitve self-assessment and consequently aware of their abilities are more strategic and perform better than those who are unaware (Rivers 2001: 286). In effect, metacognition aids skill development: the better one is at something, the better one can evaluate one's own performance and that of others. Therefore, Teachers should teach students how to self-

evaluate themselves accurately and how to become better readers at the same time. In light of this, it important for teachers to be role models by evaluating students objectively and giving them honest feedback (Zubin and Gregory 2007: 89), and instill in students the habit of reflecting on how a task should be done and what has to be accomplished to get it done. This may enhance accurate self-assessment skills and increase students' awareness of their knowledge and abilities and self-efficacy .

Test developers are also addressed in this study. Considering the backwash phenomenon in testing and teachers dependence to traditional testing which requires rote memorization.. One popular modal for test developing in critical thinking is Bloom's taxonomy which covers the requirements of testing in critical thinking program.

5.6 Suggestions for further Study

- Effect of critical thinking strategies on reading comprehension performance of senior primary school pupils**.**

  The effects of critical thinking strategies using Reciprocal Teaching Method and Think-Pair-Share Method teach reading can be investigated at other educational levels and in other socio-cultural contexts.

- Impact of teaching critical thinking strategies on performance of final year secondary school students

Since both the under-achieving readers, good readers and independent readers were used for this study, further research could be conducted on the effect of other models of critical thinking instruction methods on low, average and high performance students. Meanwhile, the present research effort may be complemented with further research into the quantity, quality and application patterns of reading-related skills of thinking in English among

students of junior, senior secondary schools and even tertiary educational institution categories. Whether the skills should be taught as a separate curriculum across levels of education in Nigeria can also be investigated. If further research comes up with a typology of reading-related skills of thinking in English (in Bloom's 1956) way), It may be more convenient for teachers of interdisciplinary English to suit evaluation to the teaching learning process.

Finally, this study is inconclusive on which sex performs better under any of the methods. Further research is therefore needed on gender effect on learners' performance in reading instructions when taught using other models of cooperative methods.

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APPENDIX A

SAMPLE SIZE TABLE ACCORDING TO CURRY (1984)

0-100…….100%

101-100…….10%

1001-5000……5%

5001-10000……..3%

10000+ ……1%

Table determining sample size developed by curry (1984)cited in yount (2006)

APPENDIX B

CRITICAL THINKING INSTRUCTIONAL GUIDE (C.T.I.G)

THINK-PAIR- SHARE METHOD - TPSM

This experimental group employs the Think-Pair-Share Method to teach reading comprehension at three levels in three different lessons.

Lesson 1: The topic is presented and it to last for 80 minutes.(DOUBLE PERIOD)

The teacher explains to the students the following:

Students are to work together in pairs

They are to interact with each other by sharing ideas and materials

They will be evaluated on pair basis

Students must report to their partners.

Partners are to report to the class

The objectives of the lesson: At the end of the lesson, students should be able to use the Think-Pair-Share Method to:

read and comprehend passages at the literal, inferential and evaluative levels:

Discuss in pairs in order to comprehend the passage better answer the specified questions under the passage.

Step 1: The teacher begins each lesson by provoking students' thoughts with the title, question, pictures, prompt or observation. Students are to take time to think about the questions, prompt or observation. The teacher aids students' thinking by presenting various materials, aids, pictures, real

objects that relate to the topic under observation. Difficult words in the passage are treated.

Step II: After the individual response of students, teacher pairs upstudents of different performance levels and boys and girls together. They read and discuss briefly about their answers and write down theanswers they think are best, most convincing and most unique.

Step III: The teacher asks pairs to submit their answers and then to share their answers with the rest of the class.

Step IV: The teacher reads the passage to students and then provides answers to the questions

A Lesson plan (on Think-pair-share Method.)

Lesson 1

Class: SS II

Topic: Teaching the Literal Level of Reading Comprehension

Sub-topic: Musa's Story

Duration: 80 minutes

Objectives: At the end of the lesson, students should be able to use Think-Pair-Share Method to:

- identify main ideas from sentences and paragraphs
- recognize facts
- state or retell information

Previous Lesson: Students have been involved in reading Comprehension lessons before and they know things which have actually happened.

Instructional Materials: The reading passage &pictures to illustrate the story.

Step 1: Introduction

Teacher's Activity: The teacher introduces the lesson by explaining briefly the following

Literal comprehension means the ability to understand the full meaning or gist of the topic.

Students can achieve literal comprehension by following the narrative, descriptive or expository patterns of the text.

Students' Activity

The students listen attentively to the teacher's explanation

Step II: Pre-reading Activities

Teacher's Activity

The teacher provokes the thinking of the students by asking the following pre-reading questions in order to guide the students through the passage.

How many of you have seen a bush before?

How does a bush look like?

What are the things that can be found in The Bush, the From the picture in the text, what are the things you can see?

Students' Activity

The students listen and try to answer some of the questions and identify things in the picture.

Step III: Activities in Pair Groups

The teacher pairs up students with their partners and asks students to answer the pre-reading questions she had asked. She ensures students remain with the designated partners.

Students' Activities

Students pair up with their designated partners and answer the questions by offering explanations to their partners.

Step IV: Reading Activities

The teacher asked students in their various pair groups to read the passage silently and allows them to discuss and share with their partners the facts they have got from the passage. She moves around to help and facilitate the understanding of different students. Sheensures students are not involved in any form of reading errors and offers explanations to difficult words.

Students' Activities

Students discuss the main ideas in the passage. Each student explains to his/her partner what he/she feels the passage is talking about, other reasons as contained in the passage to the partner and allows exchange of ideas with his/her partner. They agree together and write down their answers.

Step V: Evaluation (Post-reading Activities)

Teacher's Activity

The teacher evaluates the lesson through various activities like asking the post-reading questions from the pairs based on the passage and allows them to go back to the passage if they have difficult in answering the questions. He directs the students to the actual paragraph or sentences in order to get the correct answers. The teacher directs them to write down the correct answers in their notebooks.

Students' Activities

Students presents their pair groups answers to the teacher and orally answer the post reading questions. They participate in all the post reading activities. They write down their answers.

Step VI: Conclusion

Teacher's Activity

The teacher gives a summary of the main points and facts in the passage to the students. Allows students to ask questions where they are not clear.

Students' Activities

Students listen, identify the key points and note them. Ask questions where they are not clear.

Step VII: Follow-up Activities/Assignment

The teacher asks students to write on any bush they have ever seen, things in and around the bush students do this from home.

Lesson II

Class: SS II

Topic: Teaching the inferential comprehension

Sub-topic: The African Religion

Duration: 80 minutes (double-period)

Objectives: At the end of the lesson, students should be able to interpret the writer's point of view distinguish between the implied meanings and the main ideas explain figurative usages

Previous Lesson: Students have been taught how to use the TPSM to answer literal questions

Instructional Material: The reading passage printed, pictorial illustration.

Step 1: Introduction

Teacher's Activity: The teacher introduces the lesson by explaining briefly the following:

Inferential comprehension means the ability to understand the implied meaning in a text. Students can achieve inferential comprehension by referring to their background knowledge.

Inferential comprehension involves the ability to interpretfigurative expressions in the passage

Students' Activity

The students listen attentively to the teacher's explanation

Step II: Pre-reading Activities

Teacher's Activity

The teacher tells the students that the focus of today's lesson is on the deeper meanings of the writer of the passage, how to draw relationships and differences in the passage. The teacher directs the attention of the students to the second and third paragraph. The teacher explains that from these two paragraphs we can deduce that because …….

Students' Activities

The students listen and try to answer some of the questions and identify figurative expressions in the passage.

Step III: Activities in Pair Groups

The teacher pairs up students with their partners and asks students to answer the questions . He ensures students remain with the designated partners.

Students' Activities

Students pair up with their designated partners and answer the questions by offering explanations to their partners.

Step IV: Reading Activities

The teacher asked students in their various pair groups to read the passage silently and allows them to discuss and share with their partners the facts they have got from the passage. He moves around to help and facilitate the understanding of different students. He ensures students are not involved in any form of reading errors and offers explanations to difficult words.

Students' Activities

Students discuss the deeper meanings in the passage. Each student explains to his/her partner what he/she feels the passage is talking about, offers reasons as contained in the passage to the partner and allows exchange of ideas with his/her partner. They agree together and write down their answers.

Step V: Evaluation (Post-reading Activities)

Teacher's Activity

The teacher evaluates the lesson through various activities like asking the post-reading questions from the pairs based on the passage and allows them to go back to the passage if they have difficult in answering the questions. She directs the students to the actual paragraph or sentences in order to get the correct answers. The teacher directs them to write down the correct answers in their notebooks. The questions are:

Why did the writer spend many hours in text?

What did the so….

Hornbills remind the writer of?

Students' Activities

Students present their pair groups answers to the teacher and orallyanswer the post reading questions. They participate in all the postreading activities. They write down their answers.

Step VI: Conclusion

Teacher's Activity

The teacher gives a summary of the main points and factsin the passage to the students. Allows students to ask questions where they are not clear.

Students' Activities

Students listen, identify the key points and note them. Ask questions where they are not clear.

Step VII: Follow-up Activities/Assignment

The teacher asks students to write from home an imaginary experiencethey have read or experienced about black bushes.

Lesson III

Class: SS II

Topic: Teaching the evaluative comprehension

Sub-topic: The Black Bush

Duration: 80 minutes

Objectives: At the end of the lesson, students should be able to: separate the writer's point of view from opinions expressed. distinguish between the purpose of the writer and other ideas in the passage. explain literary devices used in the passage.

Previous Lesson: Students have been taught how to use the TPSM&RTM toanswer inferential questions

Instructional Material: The Reading comprehension passage, pictures.

Step 1: Introduction

Teacher's Activity: The teacher introduces the lesson by explaining briefly the followings:

Evaluative comprehension means the ability to understand the higher meaning of the topic.

Students can achieve evaluative comprehension by reading beyond the literary and inferential levels.

Evaluative comprehension involves the ability to understand literary devices in the passage.

It involves X-raying fully what has been read.

Students' Activity

The students listen attentively to the teacher's explanation

Step II: Pre-reading Activities

Teacher's Activity

The teacher tells the students that the focus of today's lesson is on the deeper meanings of the passage, how to draw relationships and differences among bushes. The teacher tells the students how to make a critique of the meaning and approach employed by the author of the passage using various skills.

Students' Activity

The students listen and try to answer some of the questions and identify these meanings in the passage.

Step III: Activities in Pair Groups

The teacher pairs up students with their partners and asks students to answer the questions he had asked. He ensures students remains with the designated partners.

Students' Activities

Students pair up with their designated partners and answer the questions by offering explanations to their partners. \

Step IV: Reading Activities

The teacher asks students in their various pair groups to read the passage silently and allows them to discuss and share with their partners the facts they have got from the passage. He moves around to help and facilitate the understanding of different students. He ensures students are not involved in any form of reading errors and offers explanations to them.

Students' Activities

Students discuss the deeper meanings in the passage. Each student explains to his/her partner what he/she feels the passage is talking about, offers reasons as contained in the passage to the partner and allows exchange of ideas with his/her partner. They agree together and write down their answers.

Step V: Evaluation (Post-reading Activities)

Teacher's Activity

The teacher evaluates the lesson through various activities like asking the post-reading questions from the pairs based on the passage and allows

them to go back to the passage if they have difficult in answering the questions. She directs the students to the actual paragraph or sentences in order to get the correct answers. The teacher directs them to write down the correct answers in their notebooks. The questions are:

Where, when, why was the writer in the place we find him at the beginning of the passage?

What did the sounds of the small, unidentified bird and the hornbills remind the writer o? Why did the writer spend many hours in the black bush?

Students' Activities

Students present their pair groups answers to the teacher and orally answer the post reading questions. They participate in all the postreading activities. They write down their answers.

Step VI: Conclusion

Teacher's Activity

The teacher gives a summary of the main points and factsin the passage to the students. Allows students to ask questions wherethey are not clear.

Students' Activities

Students listen, identify the key points and note them. Ask questions where they are not clear

Reciprocal Teaching Framework

- Predicting (New text) - Use titles, pictures, experience to make predictions.
- Ask group to discuss your predictions
- Ask group to read first part of text (approximately one or two paragraph).

Clarifying - Ask the group to identify words and phrases that are not understood

- Ask group to help by using context clues and picture case
- Highlights unclear parts and puzzling information.
- Where word remains unknown teacher clarifies.

Questioning Ask questions:

Literal- answer is in the text, easy to find.

Inferential- answer can be found between the lines. It demands thinking and searching.

Evaluation- answer can be drawn from the child's own experience.

- Choose student to answer
- Ask student to answer questions and discuss answer
- Ask student to evaluate question type.

Summarizing - Pullout main ideas and key details

- Write down only main gist
- Summaries what group has read
- Be brief and cover main points only.
- Ask group to change or add to your summary if necessary

Slightly modified Bindon and Dewsbury (1998) Reciprocal Teaching

Framework

A Lesson on Reciprocal Teaching Method (RTM) to teach reading comprehension.

Lesson 1: The topic is presented and it is to last for 80 minutes. The teacher explains to the students the following points about the method:

(a) It involves the students as teacher and learner

(b) It teaches the reading comprehension strategies of predicting, questioning, summarizing and clarifying.

(c) It teaches students to comprehend at different levels

(d) Students are to work in groups of four

(e) They are to choose a leader while other support andguide the leader.

(f) They will be evaluated on group basis rent levels.

(g) Students can substantiate their opinions by referring toappropriate portions of text.

(h) It is interactive and collaborative

Step VII: Follow-up Activities/Assignment

The teacher asks students to write on any bush they have ever seen,

things in and around the bush and students do this from home.

APPENDIX C

READING COMPREHENSION TEST

PASSAGE A

Read the passage below carefully and answer the questions that follow

Larai stepped behind a pillar and waited. She spotted a newspaper seller and called the boy over. He handed her a copy of the "Sun", pocketed the money Larai gave him and hurried away. Larai opened the newspaper and buried her face inside it. Under the cover of the opened paper, she opened her bag and released the safe cache of he small automatic pistol. Tamuno came out of the arrival's building four minutes later. He waved his hand and the taxi pulled away from the ranks and drove off. Larai folded her paper, threw it away and moved forward. Three feet from Tamuno, she stopped. "If I were you I'd tell the taxi driver to move on" she said quickly. Tamuno turned and stared at her astonishly. He took some time, but he finally recognized the face. Panicking instantly, he dropped his briefcase, and reached inside his coat. 'I wouldn't do that if I were you, Larai said. She pulled out the automatic pistol from her opened bag and pointed it directly at him.

Tamuno froze and slowly removed his hand from his coat. Whistled and two policemen appeared. 'One of you, search him and the other pick up that briefcase,' she said without turning. The men went into action. One of them searched roughly and found a gun inside his coat. He slipped a pair of handcuffs on Tamuno wrist. The officer picked up the briefcase, reached into Tamuno pocket for the key and opened it. He whistled to himself and turned to Larai. 'It is full of money Madam,' Larai slipped the automatic pistol back into her bag and looked into the briefcase. Tamuno didn't say anything. "Okay boys, let's go."

Now answer the following questions by choosing from the options lettered A-E

1. Which of these is true of Larai?
(A) She was reading a newspaper.
(B) She spotted something from the newspaper
(C) She used it as a cover to get her automatic pistol.
(D) She bought a pistol from a newspaper seller
(E) She saw the pistol from the newspaper bought.

2. Under the cover of the paper, she
(A) dropped a note with police
(B) Release the safety of her automatic pistol.
(C) Sent a telephone message to the security men
(D) Wrote an article for the newspaper
(E) She gave order to the security men.

3. What in your own opinion made Larai to throw away the paper
(A) She had finished reading it
(B) She wants to move forward
(C) She saw Tamuno whom she had been waiting for
(D) The taxi driver pulled away
(E) The taxi driver drove off.

4. What do you think Tamuno did when he recognized Larai, he
(A) rejoiced greatly
(B) dropped his briefcase
(C) panicked immediately
(D) stared at her
(E) he took his coat

5. We can infer from the passage that Tamuno put his hand into his coat in order to?

6. What happened when Larai whistled?

7. What do you think happened when a gun was found inside Tamuno's coat?

PASSAGE B

Read the following passage and answer the questions on it.

MY GRANDMOTHER

I love going to visit my grandmother in our home town. I always feel happy and excited when I walk up the steeps of her house. They are very old steps and a great many people have walked up them; so they are quite black. In the compound children are playing

or resting. The women are always doing something. They plait their hair or take the husks off Egusi while they sit and chat.

First, mother greets everyone in the compound. She asks how they and their families are and they ask about all of us. All this takes a lot of time and I begin to feel impatient. Then mother gives them some of the loaves of bread that we bring every time we come. But I keep looking at the doorway of the old house. I want to get inside and see Grannie.

At last we go in. The air inside is cool. The old house has very thick walls, very small windows and very high ceilings, so the air inside is always cool.

It is dark too, and at first I can't see anything clearly. But the chickens and goats in the passage can see us. The chickens begin to squawk to warn me not to step on them; and the goats bleat and often one of them pushes past me to the door.

There are several tall carved doors on either side of the passage. Age and the smoke from the fire which is burning in the far corner have made them black. Grandmother is there beside the fire, and I know she is cooking stew for us. She is never content until we have eaten something. She hears our footsteps and looks up. She greets us and we go down on our knees in front of her. She raises us up and peers at us in the dim light. She pats my head, laughs and tells my mother that she looks after me well. Then she takes us into her room.

The room has only one tiny wooden shutter. Grandmother opens them when we go in; but usually they are shut in order to keep out the heat. The calendar father always gives her at Christmas hangs by the window. Grandmother's slippers stand under the bed and some of her clothes hang from pegs on the opposite wall. There are some old, worn boxes

on a shelf over the bed and some more underneath it. These boxes used to fascinate me. I wondered what was in them and used to make up stories about them. Then one day I solved the mystery. I found out that Grannie kept all her best clothes carefully packed away inside them.

Grannie is tall and thin. Her hair s white and plaited and she hasn't many teeth. But she cooks wonderful stews and she can tell marvelous stories – especially about the tortoise. She always tells me one, sometimes two, when we visit her. Grannie is a farmer and she spends most of the week on her farm. She has a little house there. Sometimes she comes back to town at weekends; but sometimes she is so busy that she only gets back once a month.

Soon, too soon, it is time to go. I don't like saying goodbye to Grannie. I always feel sad and I think she does, too. She gives my mother some yams from her farm and presses a few coins into my hand. Then she walks ahead of us along the dark passage, through the door and down the steep, black steps. Every time we wave goodbye, I ask the same question, 'When can I come and see Grannie Aga

Now answer these question

8. What is the setting 0f this story?

9. Do we learn anything about the characters of one or more of the people in this story?.....
   Who?.....

10. What do we learn about Grandmother's character?.....Is she a kind or an unkind person?
    How do we know?.....

11. Is she tidy or untidy?..... How do we know?..... Is she hard-working?.....How do we know?.....

12 What does the writer say that shows her grandmother is an old woman?

What does the writer say that shows her grandmother is a person that people can easily love?

13. The writer says, 'Soon, too soon it is time to go. 'Does this tell us that the visit was a very short one? What does it tell us?

14 Does the writer know that her grandmother feels sad when they say goodbye?

15 The writer did not need to describe a visit to her grandmother in order to describe he could just have written:----------
---

PASSAGE C

Read the following passage and answer the questions that follow.

John is one of the 26 students of the International School for the Blind who have been integrated into "normal" schools to continue their secondary education. He has already completed Form I at Surulere High School; and in the past year attended the same classes, did the same homework and took the same examinations as the other sighted students. "I want to enjoy all aspects of school life like all the other students," he said. "I have taken part in singing contests and the general knowledge quiz, and I do my best in the Clean Classroom Campaign. I've made a lot of friends. It really puzzles me when people ask if I can take a bath on my own, or need help to get to school."He also admits to joining in the fun and mischief that all school children enjoy. "After being at a special school for

the blind for 8 years, the classes in normal school seem unusually large, noisy and lively. Sometimes the boys put a blackboard duster on the door so that it falls on someone's head," laughed John. "It took me sometime to get used to classroom high-jinks. It's harmless fun and part of the scene. I nearly got detained once for joining in a classroom football game." John says that the difficulties he had in school are the same as those that all students must face. These include the usual examination anxieties, and the common problem of limited chances to speak to teachers because of the large number of students. The integration programme begun in 2002, and brings blind and sighted people together so that both can get to know each other and learn how to handle situations where one of the parties is handicapped. The School for the Blind, which has over 200 students, provides classes for primary school age children only. So integration is the only way to a tertiary education.

The less academically able students must wait for a place in Skills Centre for the Disabled. To be chosen as an integrator, a blind student must have academic ability and the right attitude to study and school life. Since they cannot take notes during lessons, an integrator must either record a lesson on a tape-recorder, or borrow notes from a classmate.

Answer the following questions by choosing from the options

lettered A-E

16. Why is it hard to believe that John Kolobe 'lives in a world of total darkness'? (paragraph 1)

(A) because he is a talkative
(B) because he is so cheerful
(C) because he moves around the school so easily
(D) because he seems to behave like any other student.
(E) because he can see as well as anyone.

17. 'Integrated' in paragraph 1 implies that John Kolobe is----------

18. What in your own opinion are John Kolobe's main worries?

19. In what way, if any, does John require special help?

20. How do you think we should treat people who are blind?

21. What is the writers view on point on intergrated schools?----------
---

22 What are the main worries of other students in intergrated schools----------
---

23 Summarise the passage in two sentences……----------

APPENDIX D

Marking Guide, for Reading Comprehension Test

There are **23 question, Total scores is 23 marks**

Multiple choice question are question 1, 2, 3, 4 and 16

1 C- She used it as a cover to get her automatic pistol. (1 mark)

2 B- Release the safety cache of her automatic pistol (1 mark)

3 C- She saw Tamuno whom she had been waiting for. (1 mark)

4 C- Panicked immediately. (1 mark)

16 D- Because he seems to behave like any other student. (1 mark)

Short sentences and answers

5. It can implied/ infer that Tamuno (he) put his hand into his coat to bring out his pistol (gun) (1 mark)

6. Two Policeman appeared. (1 mark)

7. He would further charged to coat/hand cuffed/arrested as criminal suspect. (1 mark)

8. It's a typical rural/village setting. (1 mark)

9. We learn on the kind character of Grandmother. (1 mark)

10. We know through her well kept Cloths and hard work at farm (2 mark)

11. She is tidy, keeps her cloths in box everything is in order in her house. (1 mark)

13. It was a short story because of the use of the expression “Soon too soon”.

14. The writer narrates that the Grandson feel sad and he (grandson) said ‘I think she does (feel sad)’

15. A visit to my kind hard working Grand mother in our home town.

17. Integrated means – John Kolobe was blind absorbed, join, combine or mixed- with normal/ sighted children (1 mark)

18. Examination anxieties, limited chances to speak to teachers because of large classes. (2 mark)

19. Taking notes in the class and teachers special attention in view of his sightness .

20. Help the blind when in need of help

21. The writer viewed that integrated school help to prepare blind student for tertiary education/ He view integrated school as the only way to a tertiary education

22. Other students main workers are examination getting teachers attention.

23 (i). John Kolobes experiences in integrated school (2 marks)

(ii). The essence and problem of integrated school (3 marks)

APPENDIX E

SAMPLE LESSON PROCEDURES ON CRITICAL READING STRATEGIES

(1)Making judgment about Source of information /writer

Step 1 : Procedure: I. Tell students that you heard Christmas was no longer going to be a school holiday.

Step 2. After their response to ' Who said so?" He ask why it matters who told you.

Step 3. Following discussion, suggest four possible sources and have them decide which would be the most reliable. Possible sources might include a student, the school principal, a friend who heard the news on the bus, and a television comic.

Step 4. After a discussion of the importance of knowing the source of information in evaluating it, students work on a Who Said?

Directions: Check the best source for the given information. (Teacher to supply own statement and possible sources.) For instance... Who said the statement….

1. A diet consisting only of fast-food hamburgers and Coke is nutritious .

__ a. Regina An SS II Student

b Mr. John, the Gatekeeper

c. Mrs DadaJoseph Lee, Home economics teacher

2. It's going to rain tomorrow.

a. your Aunt Martha, who has ar. arthritic knee

b. TV weather forecaster

c. manager of the local shopping mall

[Teacher supplies five more items]

Make up your own statement and sources. Students read relevant material. such as newspaper and magazine articles and current textbooks, and check the sources of information.

Procedure: I. After students have been introduced to reference aids such as the atlas,

dictionary, encyclopedia, and thesaurus. reinforce their reference skills. Divide the class into pairs or small groups and give each a list of questions to answer, such as "Where is Zimbabwe?" "What are the main exports of Italy?" "What does maxillary mean'?"

2. Groups decide on the best source for each topic and find the information. You may want to set a time limit. 3. After discussing the sources and information, show students other reference tools that would be the best sources for other types of information.

Extension: Students create their own best-source tasks for each other.

3. Whose Point Of View?

Procedure: I. Students read an unbiased, factual announcement about a subject of interest to them-for example, an explanation of a new school dress code.

2. Elicit from the students the facts in the announcement. Write them on the board.

3. Discuss the announcement, asking for their points of view and inquiring if there might be other points of view.

4. After discussing different viewpoints about the same facts, have each student write an article from one of several points of view, using the facts given

A but trying to convince the readers of that point of view. You may want to have them draw their point of view from a box. Possible sources of viewpoints might include a student. a teacher, a parent, a school administrator, and an owner of a shop specializing in teenage apparel. Students do not state the identity of the source in their articles.

5. Students read their articles aloud (or publish them), and the class decides whose point of view is being represented, listing the clues that led to its decision.

Variation: Students exchange articles.

B. DISTINGUISHING FACT FROM OPINION

1. Fact Or Opinion

Procedure: I. Read or make some statements, such as

(a) "All Nigerian Love football. "

(b) "Sixteen percent of those surveyed prefer pickles to ice cream."

Ask students if they are facts or opinions. Remind them that the difference between facts and opinions is that facts can be proved and opinions cannot.

2. Lead a discussion, using examples, about the clues that can alert a reader to whether it is an opinion or a fact that is being expressed:

a. Adjectives about qualities (nicer, finer, etc.), qualifying expressions (l believe, in opinion, usually, probably), and words that indicate a future action or obligation (should, must, ought) are often contained in opinions.

b. The more general a statement, the more likely it is to be an opinion. (All teenagers like potato chips.)

c. The more specific a statement, the more likely it is to be a fact (Sixty-six percent of all teenagers eat a bag of potato chips a week.)

d. Emotional language is found more often in opinions.

e. Opinions can't be verified.

3. Discuss the importance of being able to distinguish fact from opinion.

Evaluate as fact or opinion.

1. Ask students to indicate next to the factual statements where they could find information to verify the facts. Encyclopedias. dictionaries, experiments, and newspapers would be examples.

2. Students circle the clues in the statements on the sheet and share results in a class discussion.

3. Students work independently or in small groups on copies of paragraphs from their current textbook assignments. underlining the facts, circling the opinions, and indicating where they could verify the facts

. 3 DETECTING EMOTIONALLY LADEN WORDS

1. Find the real message

*procedure*1. Find examples of synonyms, such as crow and mob, residence and home, slender and skinny, whose different connotations can be elicited from students. explain that being aware of the use of such language is important in understanding and evaluating what we read

1. 2. Use an overhead projection passages from their current reading assignment
2. Have Students bring to school articles, advertisement, pamphlets containing emotive words.

2. **Whose words**

Procedure

1. Distribute to the students three accounts of the same event whose language indicates they were written from different points of view (see fig 21-6).
2. Explain the difference between *connotation* and *denotation,* eliciting example from the students.

3. After students read the material, question them and list on the board in three columns the words they to describe the denotative terms (see fig 21-7).

4. Discuss which reports was the most objective, based upon the words used. Similarly, decide the biases of the other writers based on their word choice.

5. Students read assigned material, using the column format, and share results in class.

6. Students work independently on text material.

Activity : Students think of an event, brainstorms synonyms they could use that have different connotations, and create two versions of a story.

Writer A

At 4:30 A.M. Five courageous officers of our often honored police department braved the cold and dark hour of the nights to apprehend a notorious criminal who was lurking in the garage of John may berry, a popular local citizen.

Writer B

At 4:30 this morning five police men took into custody suspect hiding in John may berry's garage.

Writer C

At 4: 30 AM five husky, powerful cops burst into John Mayberry's garage, where an unfortunate unemployed man was hiding from the cold. With unnecessary force the burly police men dragged the frail man from the worm of the garage into the cold night air, forcing him into a police car and driving at top speed to the police station.

word association

Procedure: 1. Tell students that you want to play a word association game: you want find out which words come to their minds when you mention specific words. Have them make a four – column chart on a notebook page.

2. Have them write black / dark at the top of the first column.

Under this they write for three minutes all the words / dark make them think of.

3. They write white/ fair at the top of the second column and follow the same procedure.

4. Students write fat at the top of the third column and thin at the top of the fourth column, and follow the same procedure.

5. Students share their words, write them on the board.

1. Lead a discussion about the number of favorable or unfavorable words they generated from each column. Ask them why they thought they got the idea that made this association. Elicit familiar characters that they associated with the words (*black/ dark*: the witch in *Sleeping Beauty* and in *Snow White*, the ugly sister in cinderalla, and the wolves in *Red Riding Hood;* white/fair ; The princess in *Sleeping Beauty; fat:* Tweed ledee; thin: the pied piper; among other examples)

2. Discuss stereotypes and how they are used in comics and story books. Emphasis that they can be harmful if they constitute the only way we view people. To demonstrate

this, have students generate positives examples from their own lives of *black/ dark* and *fat,* negative examples of white/ fair and thin

3. this discussion by alerting students to look for stereotype and word association in the books they read for assigned work and for pleasure.

Extension: Have students compile a list of stereotypes they observe in television and the movies.

4. ESTABLISHING EVALUATION CRITERIA BEFORE MAKING JUDGEMENTS

Procedure: 1. Before students begin reading an assigned story, lead a discussion about books or stories that they have really liked, listing on the board examples of really "good'' stories

Summarize on the board the critical-reading skills that students have, used in reading the article, explaining that they will find these skills useful in-: reading any factual material.

Extension: Have students change the subject but use the same format to write other parodies.

Establishing Evaluation Criteria before making judgments.

1. **Good or Bad?**

Procedure*:*

i. Before students begin reading an assigned story, lead a discussion about, books or stories that they have really liked, listing on the board examples of really "good" stories.

ii. Ask what *good* means. Ask students to supply characteristics (they will probably mention such things as believable characters, vivid descriptions, real-life: dialogue), and write these on the board. Emphasize that they have now given the criteria that they use when evaluating a story; they have given a specific meaning" to the word *good.*

iii. Once the students have agreed on the criteria, they read the story.

iv. Lead a discussion focusing on evaluating the story according to the given criteria. Criteria may be amended as needed.

v. As a follow-up, have students use these criteria when evaluating their assigned reading; make a checklist for them to refer to.

Extension*:* Use the same procedure when discussing why a television program or movie was; good. Point out to students the differences in criteria that they use in these situations. Similarly, employ this method when deciding who was the *best* character in a story, which was the most *useful* idea in a selection, and so on.

APPENDIX F

PICTURES OF EXPERIMENTAL & CONTROL GROUPS DURING DATA COLLECTION



Female Experimental group during post-test



FFemale Experimental group during treatment lessons

PICTURES OF EXPEREMENTAL GROUP STUDENTS (MALE AND FEMALE STUDENTS)



Male Experimental group



Female Experimental group



Female control group



Male Experimental group



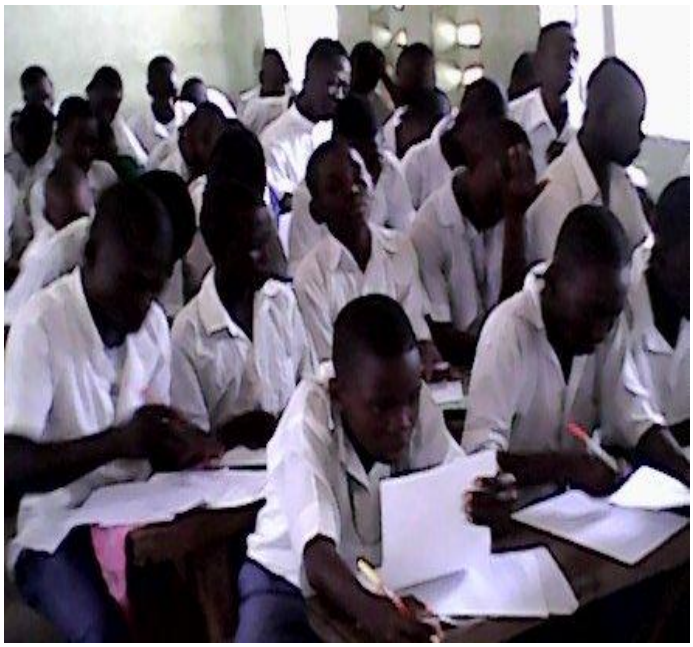
Female control group



Male control group



Female control group



Male control group