EFFECTS OF SCHEMA THEORY ON JUNIOR SECONDARY SCHOOL ENGLISH LEARNERS' PERFORMANCE IN READING COMPREHENSION IN ZARIA EDUCATIONAL ZONE

BY

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A DISSERTATION SUBMITTED TO THE SCHOOL OF POSTGRADUATE STUDIES, IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER'S DEGREE IN TEACHING ENGLISH AS A SECOND LANGUAGE (TESL) DEPARTMENT OF ARTS AND SOCIAL SCIENCE EDUCATION, FACULTY OF EDUCATION, AHMADU BELLO UNIVERSITY, ZARIA, NIGERIA

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DECEMBER, 2016

DECLARATION

I declare that this research work titled "*Effects of Schema Theory on Junior Secondary School English Learners Performance in Reading Comprehension in Zaria Educational Zone"* was written by me 'Nmadumelu Obi (MED/EDUC/21115/2012-2013)' under the supervision of Professor I. A Olaofe and Professor M. Sadiq, and has not been presented elsewhere for the award of any degree or certificate. All citations have been acknowledged by means of reference.

_____ _____

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CERTIFICATION

This research work titled "*Effects of Schema Theory on Junior Secondary School English Learners Performance in Reading Comprehension in Zaria Educational Zone"* has been read and approved in partial fulfillment for the award of Master's Degree in Teaching English as a Second Language (TESL), Department of Arts and Social Science Education, Faculty of Education, Ahmadu Bello University, Zaria, for its contribution to knowledge and literary presentation.

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DEDICATION

This thesis is wholeheartedly dedicated to God Almighty for His sufficient grace upon my life towards the execution of my studies and this thesis.

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ABSTRACT

It is an undisputed fact that reading remains one of the most central skills in the success of any educational pursuit. This study titled "Effects of Schema Theory on Junior Secondary School English Learners' Performance in Reading Comprehension in Zaria Educational Zone" was conducted to find out the effects of schema theory on the reading comprehension of JSS 2 students. Three specific objectives, research questions and hypotheses were formulated. A reading comprehension test was administered to the students comprising an experimental and control groups. The population for the study was the 32 public schools in Zaria Local Government Area of Kaduna State from which two schools were selected (Government Junior Secondary School, Gyallesu and Government Junior Secondary School, Aminu). Samples of 120 students were selected from both schools using purposive and random sampling technique. The students were given a pre-test before they were taught using schema theory techniques after which a post-test was administered. The data collected were analyzed using inferential statistics and was used to answer the research questions and the hypotheses for the study. In all, the research questions raised showed that schema theory was effective for junior secondary school English learners performance in reading for literal, inferential and critical interpretation and evaluation comprehension, Thus, based on these findings, it is recommended that schema theory should be the primary mode in teaching reading comprehension. Similarly, English language teachers should take advantage of the schema theory technique for developing junior secondary school student reading comprehension ability. Finally, areas for further research in the related field was suggested

DEFINITION OF TERMS

Bottom-up approaches are based on the view that meaning resides in the graphic symbols the writer uses in encoding the message.

Comprehension is the capacity for understanding thoughts and ideas

Content Schema is the knowledge readers have about the specific topic area of the text being read/discussed at a given time.

Formal Schema is the knowledge of rhetorical structures which constrain written communication.

Interactive Approaches refers to the interaction between the written text and the reader in which the reader's knowledge of syntactic, pragmatic, semantic and lexical information work together to arrive at meaning.

Linguistic Schema refers to readers' existing language proficiency in vocabulary, grammar and idioms.

Meaningful Learning refers to the concept that the learnt knowledge is fully understood by the individual and that the individual knows how that specific fact relates to other stored facts (stored in your brain).

Reading Comprehension is a process of activating the knowledge of the word combined with the appropriate cognitive skill and reasoning ability to get ideas from the print

Reading is a way of building meaning from what has been put down in the written form

Schema Activation is the process in which some textual stimuli signal the direction or area for the reader to look for and evoke the relevant schema from memory into the present reading task

Schema is the *"the mental map"* or set of mental connections we had in our head about a particular idea of thing.

Top-down approach is that readers use their knowledge and experience to make predictions/hypotheses about the meaning of the text.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

It is so disheartening to note that the general performances of second language learners' reading comprehension are declining. Hence, government, language teachers, parents and public examination bodies are seriously frowning at the situation. The situation has been one of the disturbing aspects of the Nigerian educational system today. Language learning includes four dimensions: listening, speaking, reading, and writing. The present study focuses on the dimension of reading as it relates to schema theory. Reading can be seen as a receptive behavior in knowledge acquisition. Effective reading strategies help build reading meta-cognition and increase reading comprehension. Reading comprehension has been regarded as an important academic language skill (Grabe and Stoller, 2001; Gu, 2003) and has received a lot of attention in second language teaching. It is essential particularly to many English as a foreign language learners that rarely have a chance to speak English in their daily lives (Richards and Renandya, 2002; Razi, 2010). The present study is intended to determine the effect of schema (background knowledge) on second language learners' performance in reading comprehension. Reading comprehension is a function of the nature of the text itself and of the extent to which the reader possesses, uses, and integrates pertinent schemata.

Background knowledge in reading is a complicated, active thinking mental activity, a thinking process involving experience, ability to predict, verify and acknowledge information according to readers' previous information, knowledge and experience, and also an interactive language communication between readers and the writer through text. Learners' background knowledge (schemata) has greatly been taking attention in recent theories of second language learners' reading potentials. Hence, it is regarded as one of the significant theories of learning. It

has been the subject of considerable studies because of its impact on perception and memory. In the same vein, schemata are the underlying connections that allow new experiences and information to be aligned with previous knowledge (McCarthy, 1991:168). Coherent relationships are required to make sense out of a text. Hence, schemata can be categorized into three types- content, formal, and abstract/linguistic. They are all in any text and a reader's experience affects interpretation. Not possessing the proper schema or being unable to activate it leads to inaccurate constructs. Readers may benefit from either being more prepared for a text or the text itself could be modified for easier comprehension (Carrell & Eisterhold, 1983).

Prior knowledge is used to complete, and enrich the reader's mental representation of the text (Rapp & Van Den Broek, 2005). Thus, the importance of prior knowledge in reading comprehension is indisputable. In order to understand language, a reader must utilize direct and implicit information. Direct information refers to words written down, while implicit information includes knowledge of structures and words of a language in a text and knowledge of the discussed topic and certain experience (Smith; 1985 cited in Yu-hui, 2010). Reading comprehension over the years, has been approached from different angles-Bottom-up Model, Top-down Model, Interactive Model. Bottom-up Model emphasizes that reader, taking reading materials as information input, starts from letters and words recognition and then combine information continuously to accomplish reading activity. In this model, readers' implicit information, that is, one's knowledge and life experience, is neglected. The Top-down model takes concept theory as basis, and points out that readers predict reading materials according to previous syntax and semantic knowledge and make confirmation and modification during reading process. The model assumes that reading process is based on readers' previous knowledge and is a circulating process of predicting, verifying and confirming. Under the guidance of this model,

teachers would pay much attention to students' previous knowledge, that is, implicit information in the reading process and overlook basic language knowledge teaching.

Reading comprehension is commonly known as an interactive mental process between a reader's linguistic knowledge, knowledge of the world, and knowledge about a given topic. For instance, Nuttall (1996) as cited in Pratami (2011) believes that reading comprehension is a process of activating the knowledge of the word combined with the appropriate cognitive skill and reasoning ability to get ideas from the print. That is, the transfer of a message from writer to reader. As a way of buttressing and concurring to Nuttall's (1996) claim, it therefore, means that the relationship between background knowledge and reading comprehension is schema theory. Hence, this research work is strongly inspired by questions language teachers do ask concerning the performance of students in reading comprehension. Questions like: Why do students read so poorly? What are the factors responsible for such reading performance? How can I as a teacher help the students to overcome this weakness? These and many other questions have strongly inspired the researcher in researching on the effect of schema theory (background knowledge) on second language learners' performance in reading comprehension. The ability to comprehend what one reads is essential but struggling to understand everything and all kinds of materials equally is not a good way to apply one's knowledge (Aliyu, 2001). Reading comprehension is the most practical way of assessing how much of the English forms second language learners can realistically wrestle with. Students who can read can equally communicate easily with the minds that are not within the immediate environment. This implies that reading comprehension depends on the students and the readability of the text.

Within the schema-theoretic framework, the process of interpretation is guided by the principle that all new information is sampled against some existing schema. What students already know about a topic of a text, as well as getting familiar with the words and sentence

structures used in the text plays important role in reading comprehension. In other words, during the reading comprehension process, the reader is actively trying to make sense of the relevant written text by integrating previous relevant experiences (schemata) with the text information. Hence, some of the advantages that can be taken from schema theory are: Schemata help the students to connect their idea with past experience, or background knowledge towards reading text. The second is that it helps the students in understanding and interpreting new things based on the existing schema in mind. And the third is that it helps students to understanding not only things and experiences, but also, the language describing the things and experiences, including written and spoken form.

Comprehension is, consequently, a matter of activating, re-elaborating or constructing a schema that provides a coherent explanation of the relations between the objects and events mentioned in a discourse. Schemata are thus, necessary for comprehension. Rumelhart (1980) as cited in Yu-hui et al (2010) proposed three possible reasons why students cannot understand a text: first, students lack proper schema. Under this condition, students cannot understand the meaning contained in the text at all. Second, students may possess adequate schema, but the author does not provide enough clues to activate the schema. Therefore, students still cannot get the meaning. If adequate clue is provided, students can understand the text. Third, students interpret the text in a consistent way but deviate from the author's intention. Under this condition, students seem to understand the text but misunderstand the author's intention. So, it will be better if the students have capability in interpreting the author's intention deeply and also the students have more vocabulary items to deny misunderstanding of the author's purpose or the information that is given by the author in the text. It is based on Rumelhart's (op.cit) points of view that this work investigates the effects of schemata (activated schemata) on the reading comprehension ability of junior secondary school two students in Zaria. Also, empirical research conducted by

Plastina (1999) has proved that most of the teachers are not trained to a level that they are equipped with the skill of teaching students to activate their schemata while reading. As a result, the objective of teaching reading comprehension becomes impeded leading to a breakdown of students' reading comprehension ability. Also, reading comprehension is a language tool used in testing comprehension. Students should be taught how to activate and use their schemata when reading any text. Empirical research, much of which has taken place in the context of "schema theory", has demonstrated that the comprehension of a text is significantly affected by the reader's relevant background knowledge of the content area of the text

From the above, it is crystal clear to note that this research is borne out of the researchers' hue and cry over the dismal poor application of schema to reading leading to a low performance of second language learners' reading comprehension. This unfavorable situation has spurred-up the researcher into investigating whether activating background knowledge (schemata) could have any effects on secondary school English learners performance in reading comprehension in Zaria Educational Zone.

1.2 Statement of the Problem

Reading is one of the language skills, and reading comprehension is a part of overall language proficiency. It is necessary for teachers of English as a second language to cultivate students' English reading skills by providing them with effective reading strategies such as cognitive reading strategies and meta-cognitive strategies in class. A number of studies on second language learning reading shows some common obstacles encountered by learners. Most students at the secondary school level are uninterested in reading and this is attributed to their inability to apply their schema while reading and this has led to poor reading habit (Agumanu; 1980, Ikonta; 2004 and Odumuh; 2004). As such, scholars like Akinbode (2006) observe that most of them

perform poorly in reading comprehension and essay writing. According to teachers of English in a second language context like Nigeria, students read very slowly perhaps because of their inability to relate their previous experience or failure to activate their schemata (linguistic, content or formal schema) to the present text that they are reading. They do not know how to guess the meaning of the unfamiliar words. Most of them adopt the 'word by word' reading strategy for interpreting a text. Though, they understand the meaning of each word in a text, they are not able to comprehend the whole meaning of the text (Cooper, 2000).This could perhaps, be the reason why Chia (2001), reports that some students have no problem with understanding both words and sentence structures of the paragraph, but they cannot reach satisfactory interpretation of a text. He stressed further that most of college students rely too much on bottom-up processing of individual words and analyzing sentence structures, but do not apply top-down processing for the overall view of the text. This resulted from lack of appropriate instruction and practice on the parts of the teachers to the students in applying reading strategies. This of course have accounted for poor reading attitude culminating into poor performance in general. Most students have no motivation for reading and do not have efficient problem-solving ability in reading comprehension. Similarly, most students lack clear and specific objectives for reading. They enter the reading class with the phobia that reading is difficult and will not be able to read. The fact that they already have a language they use for communication further compound the problem.

Studies by White, Graves and Slatter (1990) have shown that poor readers often lack adequate vocabulary (linguistic schema) to understand what they read from a text. Consequently, reading is difficult and tedious for them. This probably may be the reason why Hart and Risely (2003) observed that young students who do not have enough vocabularies or effective word-learning strategies often struggle to achieve comprehension. Their poor experiences with reading and linguistic schema set them into a cycle of frustration and failure that continue throughout their

schooling. However, if schemata are not acquired in great enough quantity, they may tend to be frequently absent leading a child or a reader to think that his or her knowledge is not relevant even in those cases where it might be. In the same vein, even when an individual has a rich store of schemata, it is unreasonable to think he or she will have a prepackage knowledge structure for every situation that may be encountered. Sometimes knowledge structures will have to be built (or at least altered) to fit the demands of a given situation. Succintly put therefore, this study specifically seeks to tackle the problems stated below:

a. Most students at the secondary school level are uninterested in reading and they have poor reading habit. This could be as a result of their poor knowledge of linguistic, content and formal schema.
b. Some students read very slowly possibly because of their inability to relate their previous experience or failure to activate their schemata to the present text that they are reading
c. Most students do not know how to guess the meaning (using their linguistic schema) of the unfamiliar words. They rely too much on bottom-up processing of individual words.
d. Most students have no motivation for reading and do not have efficient problem-solving ability (schema step by step procedure for solving problems) in reading comprehension.
e. Most students lack clear and specific objectives for reading as such they tend not to task their schema while reading.

Considering the above issues, it would be necessary for second language learners to be equipped with schema theory technique of reading comprehension because if they are good at using effective reading technique, they may become active, strategic, and independent readers who can adjust their strategies to different reading situations, evaluating their products and behaviors for full comprehension. Hence, the main focus of this research is to determine whether the low performance of secondary school second language learners' in reading comprehension

can be improved if their schemata are properly activated and utilized when confronted with a reading comprehension task.

1.3 Objectives of the Study

The main objective of this study is to find out the effect of schema theory on junior secondary school English learners performance in reading comprehension. The specific objectives are to determine the effect of schemata on second language JSS Two learners performance in reading comprehension at the:

i. literal level of comprehension.
ii. inferential level of comprehension.
iii. critical evaluation level of comprehension.

1.4 Research Questions

Referring to the primary objectives of the study, the main research questions raised are as follows:

1. What is the effect of schema theory on second language JSS two learners' reading for literal comprehension?
2. What is the effect of schema theory on second language JSS two learners' reading for inferential comprehension?
3. What is the effect of schema theory on second language JSS two learners' reading for critical evaluation comprehension?

1.5 Research Hypotheses

Taking all the afore-mentioned research questions into account, the following hypotheses were formulated for the study:

1. Schema theory has no significant effect on second language JSS two learners' reading for literal comprehension.
2. Schema theory has no significant effect on second language JSS two learners' reading for inferential comprehension.
3. Schema theory has no significant effect on second language JSS two learners' reading for critical evaluation comprehension.

1.6 Significance of the Study

The study is intended for second language learners to learn to activate and use their schemata when reading any piece of discourse as it would aid easy understanding of the text being read. Thus, language teachers must bear in mind that schema theory should be 'functionally' beneficial in their teachings and could help their students in learning more about any written piece of discourse. As such the findings of this work could shed more light on better ways to improve second language learners reading comprehension in secondary schools. By taking these key issues into consideration, learners' level of reading proficiency may remarkably be upgraded. In the same vein, the result of this research is expected to be useful for lecturers, students, textbooks writers and curriculum planners in the following ways:

1. For reading lecturers/second language teachers, knowledge of the schema theory would become teaching technique in increasing students' reading competence and can make students interested in reading comprehension. These are expected to make teaching and learning of reading comprehension in schools easier for the language teachers and their students
2. For students, knowledge of the study would greatly motivate them to develop their reading ability and as well learn to activate their encyclopedic knowledge especially in improving their reading comprehension. In the same vein, students could learn from this study that each

type of reading requires specific skills and styles. Reading for inference demands a different style from reading for critical analysis and so on. This again, implies that their performance in reading comprehension would come out colorful.

3. For textbooks writers, knowledge of the study would help them incorporate schema theory in reading comprehension properly especially when designing and writing any reading comprehension discourse of any kind. This they can achieve via thorough study of the concept and the importance attached to the concept in the study of reading comprehension.
4. For curriculum planners/developers, the significance of the study is enormous because the result of this study would help them to design the curriculum that will reflect the objective and purpose of teaching reading comprehension via schema theory. This could equally bring about a rapid improvement in the performance levels of second language learners' in reading comprehension. The study would equally guide them in re-examining the contents of the English language syllabus with a view to taking care of the techniques of teaching reading comprehension.

1.7 Scope and Delimitation

The scope is delimited to junior secondary school two students in Zaria Local Government. The assumption is that they are already in secondary school and assumed to be more matured in terms of reading of different materials. In the same vein, students at this stage are expected to have been taught reading using other methods. As such, it may help the present study to test learners' ability to comprehend a text by teaching them reading comprehension via schema theory, then presenting questions to assess if they understood what they read.

The study is limited to two public secondary schools in Zaria Local Government Area of Kaduna State. These are: Government Junior Secondary School, Aminu and Government Junior

Secondary School, Gyellesu. The researcher is compelled to select two schools because the research involves teaching, monitoring and marking of scripts. Secondly, the subjects represent not only the population of the two secondary schools but also the entire population in Zaria Local Government. The "Hat and Draw" method of selection was employed to avert being bias either by selecting schools because of proximity or choice but minding the rules of giving equal opportunity for every school to be selected as propounded by statisticians like Imosili (1996) and Bello and Ajayi (2000).

Summary

Chapter one presented the background to the study. It explored the four dimensions of language paying attention on the aspect of reading from which schema theory sprang. Three specific objectives, three research questions and three corresponding hypothesis were stated. Problems such as disinterestedness of students in reading, inability of students to activate their schemata while reading, failure of students to spell out clearly their objectives of reading, students poor use of their linguistic schema in guessing the meaning of unfamiliar words rather they rely too much on bottom-up processing of individual words; most students have no motivation for reading and do not have efficient problem-solving ability in reading comprehension were raised for the study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviews related studies to support the present research. Thus, a working definition of reading is to be made for understanding the schema theory more clearly and deeply. Similarly, areas like reading comprehension, foundations of schema and schema theory, types of schema theory, characteristics of schema, functions of schema, schema activation, strategies to increasing prior knowledge, schema theory and reading comprehension levels, developing reading comprehension via schema theory steps and previous studies on the impact of schema theory on second language learners' performance in reading comprehension will equally be reviewed and finally, the theoretical frame work on which the study is based.

2.2 Reading Comprehension

Reading is a receptive skill that is meant to go hand in hand with comprehension. It is the coordinated execution of a number of processing stages such as word encoding, lexical access, assigning semantic roles, and relating the information in a given sentence to previous sentences and previous knowledge. It involves different activities such as eye movement, word recognition, speech, comprehension and vocabulary, (Olaofe and Masembe, 2006; Azikiwe, 1998). What this means in essence is that when we read, we use our eyes to view written symbols and our brain to convert them into words, sentences and paragraphs that communicate something to us.

Reading comprehension, on the other hand, is the act of constructing meaning while interacting with texts. Amah (1999:83) sees reading comprehension as "an exercise aimed at improving or testing a learner's understanding of a written language". It is the ability of the reader

to notice pieces of text that relate to their past experiences. Comprehension reflects who people are, how they relate to the world and others in it, their accumulated store of factual and intuitive knowledge, the social environment in which they are reading, and even how they feel in a given day (Ruddell, 2002).

It is the process of deriving meaning from connected text. No wonder Block and Pressley (2002) maintained that it is an active engagement which includes making use of prior knowledge. It involves drawing inferences from the words and expressions that a writer uses to communicate information, ideas and viewpoints. Comprehension, on the other hand, according to Radojevic (2009) reports, relies on two kinds of information: that which is received from the text and that which is retrieved from reader's memory. It occurs when a reader is able to use his prior knowledge and his own experience to interpret an author's message The schemata of the past experiences and prior knowledge that are contained in the readers' memory are critical in assisting readers to construct meaning from the text. By relating new ideas encountered in the text to familiar ideas and mental constructions, readers construct an understanding of the text material, and comprehension occurs. Comprehension is more than a mental process. It is a process of active interaction between the input data and the readers' existing world knowledge. When you read, your comprehension strategies direct the split-second activation of many thousands of neurons, and integrate your prior knowledge and experience with information in the text to create meaning. Carrell (1983) pointed out that "Comprehending a text is an interactive process between the reader's background knowledge and the text". Efficient comprehension requires the ability to relate the textual material to one's own knowledge.

More so, comprehending words, sentences, and entire texts involves more than just relying on one's linguistic knowledge". Anderson & Pearson (1984) also said that "every act of comprehension involves one's knowledge of the world as well. Knowledge of the language allows

readers to identify the printed words and sentences. Knowledge of the world allows them to comprehend these words and sentences". So, reading comprehension, on all levels, is obviously a complex ability. The more abilities a reader possesses, the better he understands the text. Similarly, while reading, the reader is viewed as an equal and active partner with the text in the meaning-making process of comprehension.

Comprehension, therefore, is the capacity for understanding thoughts and ideas. In this understanding, the readers should recognize eight skills. These skills are: Recognizing definitions and examples, enumerations, headings and sub heading, signal words, main idea in paragraphs, and short selections, knowing how to outline, how to summarize and understanding graphs and tables. What this means by implication is that comprehension is achieved gradually, as you move from a general feeling about what something means to deeper level of understanding. Reading comprehension first point of contact in relating to meaning is the symbols and then the interpretation of these written symbols to arrive at a meaning. No wonder Olaofe and Masembe (2007:1) assert that, "the essence of reading comprehension teaching and learning is to develop the skills of appreciating what is written because we read for meaning. Thus, '*reading'* is about meaning and the comprehension of meaning. '*Comprehension'* is the goal and purpose of reading. Without it there is no reading. (Langan, (2002) cited in Pratami (2011); Denchant cited in Olaofe and Masembe, 2006). To comprehend involves the ability to infer through drawing conclusions based on background knowledge and clues in a text which is geared by the printed symbols. This follows that comprehension is not simply a matter of recording and reporting verbatim what has been read, it involves a great deal of inference making. This is supported by Aliyu's claims that the principal factors that influence reader's level of understanding during reading activities include vocabulary selection, connection of different points being made, structures of the sentence, identification of the style of the text and the use of one's past experience (Aliyu, 2006).

From the reviewed above, Olaofe and Masembe's (op.cit) claims about reading comprehension is quite acceptable in some areas, the scholars have succeeded in appreciating the fact that reading comprehension can be best achieved when a reader is actively involved in the reading process by using his/her prior knowledge to interpret an author's message. This area would be useful for the present study. As a way of concurring to Anderson's view of (1984), reading comprehension is best achieved when one's knowledge of the world (content schema) is activated. Thus, proponents of schema theory claimed that learners comprehend text better when they apply their background knowledge (linguistic, formal and content) in what so ever text they are reading. In a similar vein, comprehension is best achieved when readers' interact with the text. It is believed that after this study, the result would show that schema theory is a better strategy/technique to use while teaching reading comprehension to second language learners'.

2.3 Foundations of Schema and Schema Theory

Schema (plural form: schemata) can be called frame, script, or background knowledge (Kramsch, 1993). It has a long and varied history, with roots in philosophy, psychology, cognitive information process, and computer science. Initially, it was the term that cognitive psychologists applied to explain the psychological process. Early in 1781, Kant, a German philosopher, posed the definition, insisting that only when new ideas, new concepts, and new thoughts were connected with one's prior knowledge, could they become meaningful. Thus, important features of the concept (schema) are found in his writings in the 18th century where he speaks of *"innate structures, which organize our world"*. In 1932, a German gestalt psychologist, Bartlett, developed schema theory to further explain how background knowledge is used by a reader/listener to understand and recall a text. He reported that learners' reading comprehension mainly depends on their knowledge structure. A learner will not achieve comprehension if he

does not know the relative background knowledge or cannot use the background knowledge successfully. In developing the schema construct, Bartlett (op.cit) was essentially proposing a completely new form of mental representation. Similarly, in 1932 he published his famous book, *'Remembering',* which contained a more detailed account of his empirical findings. The scholar, posited that people's understanding and remembrance of events is shaped by their expectations or prior knowledge, and that these expectations are presented mentally in some sort of schematic fashion. Bartlett (1932) concept's was decried for being too vague to be incorporated into any form of testable theory. The lack of a precise definition has isolated various conflicting interpretations of his work. Bartlett's (op.cit) ideas were swept aside by the impeding tide of behaviorism, until a return to more naturalistic approaches to human memory in the 1970s provided a favorable climate for their revival. Computational models made it possible to tie down Bartlett vague notion and understand the basic properties of schemata.

Similarly, a lot of researchers have applied schema to studying reading and speech. Modern schema theorists believed that schema, a data structure of general structure of general ideas stored in memory, consists of variables and slots. According to such a principle, meaning exists neither in oral nor in written language itself, but in the reader's mind, depending on the activation of his or her brain schemata whose controlling structure or basic moving pattern is navigated through bottom-up data-driven-processing and top-down concept-driven-processing. In the same vein, "top-down processing facilitates the assimilation of new information into the information already stored" (Xie, 2005:67 and 68). In fact, cognitive psychologists maintained that "all of a person's prior knowledge was stored in the cognitive structures of the brain". Therefore, for new knowledge to take place and to be meaningful, prior knowledge or schema needed to be activated within these structures by means of an introductory instructional strategy (Ausubel, 1987; Kalmes, 1993; Postrech, 2002 as cited in Daniel, 2005:1).

From the foregoing, the cognition (brain) as reviewed in the present study is quite relevant to the understanding of a text as meaning exists in the mind not purely in the oral or written language itself. Also, for understanding to take place there should be a corresponding activation of the brain with the reading task. The present study hopes to ensure that JSS2 students have a deep understanding of how schema theory works; how readers interact with text to arrive at comprehension. This clearly points out that people come to understand new information by activating the relevant schemata in their mind. From this point, it may be inferred that reading comprehension is more or less influenced by prior knowledge which is a strong aspect that will be useful for this study.

2.3.1 Schema theory

Recent research on second language reading put a great emphasis on the role of background knowledge, which has been formalized as schema theory. There are various ways of defining schema. Schema views reading as depending on the integration of new knowledge with a network of prior knowledge. Bartlett (op.cit) explained the term *"schema"* as "an active organization of past reactions, or of past experiences, which must always supposed to be operating in any well-adapted organic response" (Clapham, 1996:17). Rumelhart (1980), an American artificial intelligence expert, further developed the schema concept. The scholar (Rumelhart) regarded schemata as "the building blocks of cognition" that is, how knowledge is mentally represented in the mind and how it is used (Psybox, 2002). In the same vein, it is a cognitive constructs which allows for the organization of information in a long-term memory. Thus, it is a large complex units of knowledge that organize much of what we know about general categories of objects, classes of events, and types of people (Widdowson; 1983 and Van Dijk; 1983). According to schema theory, a text itself does not carry meaning rather it provides

directions for readers as to how they should construct meaning from their own previously acquired knowledge, or background knowledge. Therefore, comprehending a text is an interactive process between the reader's background knowledge and the text. Widdowson and VanDijk's position can be contested in areas like much of what readers want to know about language use (linguistics schema) and knowledge of how texts are structured (formal schema) were not given much attention by both scholars, as such, areas of these nature needed to be explored as they are paramount to the present study.

Background knowledge is made up of a person's experiences with the world (including what he or she has read), along with his or her concepts for how written text works, including word identification, print concepts, word meaning, and how text is organized. Research has shown that readers' existing knowledge is critical in determining their ability to comprehend what they read. Schema theory view reading as an active process which assist a reader in constructing meaning through connecting old knowledge or schemata with the new information being presented in the text. In the same vein, they are expectations which enable us to understand and interpret the world of reading (Olaofe, 2013:58). According to schema theory, as people learn about the world, they develop a large network of knowledge structures, or schemas, with each schema connected to many others. These schemas grow and change as a person acquires new information through experience and reading. For example, a very young child's schema for 'dog' might contain only his or her understanding of the family pet-something white, furry, and fun to play with. As the child gains more experiences with a variety of dogs in a variety of settings, the dog schema will expand and be refined. It may connect to other schema-types of dogs; colors of dogs; foods, dogs eat; places where dogs stay when the family is on vacation; dangerous dogs; who veterinarians are; and locations of important dog shows.

Cook (1997) redefined the concept as "a mental representation of a typical instance" which helps people to make sense of the world more quickly because people understand new experiences by activating relevant schemas in their mind". A reader's schemata about various topics and things are directly related to his or her reading comprehension. For example, if a reader has no knowledge of computers, he or she will have a lot of trouble in understanding a text about computers. On the contrary, if the reader has some understanding or has read similar articles before, the stored basic necessary knowledge is helpful in understanding what the reader is to read, and the reading materials will not be completely strange. The more schemata one has in his mind the more efficiency he has in comprehension.

The basic premise of schema theory is that text is ambiguous. As Carrell and Eisterhold (1983) write:

> *... text, any text, whether written or spoken, does not by itself carry meaning. Rather, according to schema theory, a text only provides directions for listeners or readers as to how they should retrieve or construct meaning from their own, previously acquired knowledge* (p. 79).

Therefore, background knowledge affects our interpretation of the text. To illustrate, let me provide these two examples. a) *The laptop was too expensive.* b) *The car was too expensive*. Our interpretation of the word '*expensive'* in sentence (a) is likely to be very different from our interpretation of the same word in sentence (b). From our life experiences we know the typical price of a laptop as well as the typical price of an expensive laptop, and we know expensive car, in a normal world, will always be cheaper. Similarly, a person's interpretation of the color *'red'* is different in each of the following compounds: red strawberry, red barn, red sunset and red hair (Halff, Ortony and Anderson; 1976 in Anderson and Pearson; 1984). Thus, our background knowledge, and the context in which the word is placed, affects our interpretation of that word. In the same vein, our interpretation of a text is influenced by what we have read before. Notice how the sentence, '*He didn't have enough money*', can be interpreted differently in the following

examples. c) The laptop was too expensive. He did not have enough money. d) The car was too expensive. He did not have enough money. In sentence (c), '*He didn't have enough money'* , is likely to be interpreted as he did not have enough savings, whereas in sentence (d) he probably has enough money at home or in the bank, but he does not have enough money on him right now. Going by Anderson et. als standpoints we may thus, deduce that schema is the prior knowledge gained through experiences stored in one's mind.

Readers develop a coherent interpretation of text through the interactive process of "combining textual information with the information a reader brings to a text" (Widdowson in Grabe 1988:56). Succinctly put, schema is the prior knowledge gained through experiences stored in one's mind. Edwards and McDonald (1993:75) observed that "schema theory is concerned with the organization of information in memory and how existing knowledge influences the encoding of new information and its retrieval from memory". Edward and McDonald's stand is quite accepted because both authorities conceive the concept as that which are very essential not only for interpreting information but for decoding how that information is organized as well. Hence, what we already know shapes our understanding when we encounter something new. The schema is *"the mental map"* or set of mental connections we had in our head about a particular idea of thing" (Myhill, Jones and Hopper, 2006:21).

However, Orasanu (1986:35) demonstrates that according to schema theory, reading involves "more or less simultaneous analysis at many different levels – from the textual levels of graphophonemic, morphemic, semantic, and syntactic features, to the experience-based levels of knowledge of specific content, pragmatics, and interpretative thinking". The theory predicts what information people will select for memory storage, that information will be abstract, and that the information will be interpreted in light of existing knowledge and integrated into the existing

network. Indeed, the existing knowledge Orasanu was referring to, is the schema the reader already have about the subject matter on ground, and this schema significantly affects the reading comprehension of the students.

More so, schemata are template in the memory against which incoming information is matched. It is an organizer that specifies how all previously learned information will interact with and shape new information. In the same vein, it is a processor that specifies how the incoming information must be arranged (Hittleman; 1988 in Olaofe and Masembe; 2006). Hittleman's view is quite clear and decipherable because schemata can be likened to encyclopedic knowledge already deposited as a template in the memory which connects and interacts with incoming information or discourse. As in the case of Adams and Collins (1979), both linguists agree when they write:

> *…a fundamental assumption of schema-theoretic approaches to language comprehension is that spoken and written text does not carry meaning. Rather, a text only provides directions for listeners or readers as to how they should retrieve or constructs the intended meaning from their own previously acquired knowledge* (p.52).

However, concurring to what Adams and Collins (1979) have said, we may conclude that meaning does not just rely on graphic symbols alone, but listeners or readers have to play and reconstruct meaning from their encyclopedic knowledge gathered from their previously acquired knowledge. In the same vein, Bartlett (1932) defined the schema as:

> *...an active organization of past reactions, which must always be supposed to be operating in any well-adapted organic response. Whenever there is any order or regularity of behavior, a particular response is possible only because it is related to other similar responses which have been serially organized…* (p.200)

Bartlett's main contribution as he pointed out is that schemata operate as a *'unitary mass'*, and that schemata are *'active'* and always operating in orderly behavior. In other words, we do not

go around reinterpreting the world every time we need to respond to a given situation. We answer to most everyday situations more or less analogically and automatically, in terms of the knowledge that we have, which has been accumulated by the active organization of our past reactions. Bartlet has failed to explore the structure of schemata; rather he stayed within the realm of effects of mental pattern which in the real sense is not a core pre-requisite to effective schema activation and use by the reader.

From the above review of schema theory, the following can be deduced with little modification. Reading from the perspective of schema depends on the integration of new knowledge with a network of prior knowledge which needs to be activated. Similarly, a text provides directions for readers as to how they should construct meaning on their own. The words of a text evoke in the reader associated concepts, their past interrelationships and their potential interrelationships. This implies that performances in reading comprehension can be adequately measured via proper schema activation and use.

2.3.2 Types of Schema Theory

As mentioned earlier, research in the area of schema theory and reading comprehension concluded that the closer the match between the reader's schema and the text, the more comprehension occurs. Comprehension of any kind depends on knowledge; that is, relating what we do not know. That is, new information, to what we already know, which is not a random collection of facts but a theory of the world. In other words, our understanding of a text depends on how much related schema we, as readers, possess while reading. Consequently, failure of L1 or L2 readers to make sense of a text is caused by their lack of an appropriate schema that can easily fit within the content of the text. This missing of an appropriate schema can be linguistic, content, or formal which are closely related to reading comprehension. According to the schema

theory, there are three main areas of schemata connected to reading: linguistic schemata, formal schemata, and content schemata. In general, there are three main types of schemas, explicitly, formal schemata, linguistic schemata and content schemata. These types of schemata have been described by Li et al. (2007). It will suffice to buttress each further below:

2.3.2.1 Linguistic Schemata

Linguistic schemata refer to readers' existing language proficiency in vocabulary, grammar and idioms. They are the foundation of other schemata. Linguistic knowledge plays an essential part in text comprehension without which it is impossible for the reader to decode and comprehend a text. Therefore, the more linguistic schemata a reader has in his mind, the faster the reader acquires information and the better understanding the reader may get. Our language schemas provide us with expectations of the appropriate linguistic and pragmatic features in which the world is articulated. It refers to the knowledge of the letters and their corresponding sounds, both alone and in clusters and the ability to predict, through knowledge of syntax, the word or words that will follow. In the same vein, they are the base for other schemata and extremely essential to decode and understand while reading. Linguistic schema is also called *abstract schema* (Nassaji, 2002; Oller, 1995 cited in Erten and Razi; 2009) or *story schema* (Mandler; 1984 cited in Erten and Razi, 2009).

From the above review, it can be deduced that, success in reading comprehension depends on the readers existing proficiency in the lexicon of the target language. Therefore, the more linguistic schemata a reader has, the faster he/she comprehend a text because linguistic schema is the bases for other schemas. Hence, readers existing language proficiency (linguistic schema) is quite relevant to the present study.

2.3.2.2 Formal Schemata

Formal schemata are defined as knowledge of language and linguistic conventions, containing knowledge of how texts are structured and what the key characteristics of a particular genre of writing are (Alderson, 2000; Carrell, 1987; Carrell and Eisterhold; 1983). It is at times referred to as *text-bound* knowledge because they include all that a reader knows about written texts, such as what is covered in text grammars or text linguistics. It includes knowledge of linguistic features such as those for narrative-type structures, expository-type structures, notions of coherence and cohesion, etc. In the field of second language, research demonstrates that when the content of a story is kept constant, but the rhetorical structure varies, second language learners' comprehension, like first language learners' comprehension, is affected (Carrell; 1981 cited in Carrell; 1983). Writers on contrastive rhetoric such as Kachru (1983) and Kaplan (1976) have indicated the need to raise the learners' awareness of the rhetorical conventions of the target language. The evidence so far suggests that there are culture-specific thought patterns determining the structure of expository texts. These findings have led specialists to emphasize that L2 reading teachers should instruct students to recognize and use the information provided by the form of a text, this being defined in discourse terms. The reason that underlies this claim is that once learners recognize the pattern that is being used, they can apply their reading strategies to follow the text and predict what is likely to follow.

A person can use formal schematic representations of a text to understand information in a new text. A study of formal schema proposes that "texts with familiar rhetorical organization should be easier to read and comprehend than texts with unfamiliar rhetorical organization" (Carrell, 1987:464 cited in Etern and Razi; 2009). Formal schemata are described as abstract, encoded, internalized, coherent patterns of meta-linguistic, discourse and textual organization that guide expectation in our attempts to understand a text. Readers use their schematic

representations of the text such as fictions, poems, essays, newspaper, articles, academic articles in magazines and journals to help comprehend the information in the text. Studies show that the knowledge of what type and genre the text is, can facilitate reading comprehension for readers because knowledge of the type of text will offer detailed evidence of the content of the text.

By way of deduction, we can say that formal schemata are higher order structures containing knowledge of rhetorical organization. In the same vein, its effects on reading comprehension can as well be tested by keeping the content of a text constant while varying the rhetorical organization. It therefore, means that second language readers should get themselves equipped with the varying organization of texts and the nature of each text.

2.3.2.3. Content Schemata

It refers to the background knowledge of the content area of a text, or the subject a text talks about such as knowledge about people, the world, culture, and the universe (Brown; 2001 cited in Erten and Razi; 2009). Olaofe and Masembe (2006) referred to it as domain/content-specific prior-knowledge. In other words, they refer to the familiarity of the subject matter of the text. It contains an understanding of the topic of the text and the cultural-specific constituents required to interpret it. Content schemata can additionally be divided into two different types: *background knowledge and subject matter knowledge*. The earlier refers to the knowledge that may or may not be relevant to the content of a particular text, and the final is straightforwardly related to the text content and topic (Alderson; 2000 cited in Erten and Razi; 2009). Similarly, content schema is an element of the individual's cultural orientation, and while culture influences all aspects of life, it undoubtedly has a major impact on all components of learning process (Al-Issa, 2006). To some extent, content schemata can compensate for the lack of language schemata, and hence, aid learners' comprehension of a text by predicting, selecting information and

eliminating vagueness (Jun et al. 2007). Jun et. al's claim is quite relevant to this study because an increase in the learners content schema can help trigger off understanding when there is a deficiency in the language schema

The concept deals with the knowledge related to the content domain of the text, which is the key to the understanding of texts. Since one language is not only the simple combination of vocabulary, sentence structure and grammar but also the bearer of different levels of the language's culture. Content schema can help learners understand texts by predicting, choosing information and removing ambiguities. Many studies show that readers' content schemata influence their reading comprehension more greatly than formal schemata. On the whole, the familiarity of the topic has a direct influence on readers' comprehension. The more the reader knows about the topic, the more easily and quickly he gets the information of the text. Therefore, if one wants to be an efficient reader, he needs to try to know the knowledge about more fields and topics. Learners with more prior knowledge can better comprehend and remember the text more (Yule, 1996:87). Cultural schema brings about cultural familiarity and helps a person to restructure the story line through referring to more personally and culturally appropriate scripts (Oller, 1995 cited in Erten and Razi, 2009). To interpret a text, suitable culture schemata is considered to be essential.

As earlier discussed, schemata are multiple knowledge structures which include culture, beliefs, expectations, values, and other past experiences which are used to comprehend the nature of things and events. Content schema is part of the individual's cultural orientation, and since culture affects all aspects of life, it certainly has a major impact on all elements of reading. Some of these elements include things such as what types of text people read? What is the purpose of reading? How reading is perceived? How readers of a text view themselves in relation to the

writer of the text? And what topics are worthy of reading? Answers to all these questions are usually culturally determined, learned, understood, and put into practice. Although idiosyncrasy cannot be ignored, one's cultural orientation appears to be a dominant force in shaping one's reading habits. Therefore, a reader is most likely to fail if his/her cultural schema is different from the one proposed by the text. As pointed out by Carrell & Eisterhold (1983: 80) "one of the most obvious reasons why a particular content schema may fail to exist for a reader is that the schema is culturally specific and is not part of a particular reader's cultural background."

Culturally specific schemata affect comprehension (Kaplan, 1966; Long, 1989; and Nostrand, 1989). According to Kaplan (op.cit), cultural differences lead to different approaches to teaching reading to first language speakers and second language speakers. Cultural knowledge is also important because to comprehend some types of writing, humor, for example, knowledge of the culture must be taken into consideration.

As a corollary to the reviewed types of schemata above, the following deductions can be made in relation to the present study. The review reveals that comprehension of any kind depends largely on the amount of schematic knowledge (linguistic, content and formal) readers posses. Linguistic schema reviewed, reveals that when a reader poses good knowledge of sounds combined to form words, the task of reading comprehension is reduced because it is the foundation of other schemata. Formal schemata, on the other hand, have to do with a reader possessing a reasonable knowledge of how different cohesive devices are used to tie-up a text by the writer. And, content schemata refer to readers understanding of the topic of a text or the subject matter of a text. However, these types of schemata reviewed are of immense importance to this work, as a good knowledge of each would assists teachers and students to tackle problems associated with reading comprehension. Jun et. al's view is also relevant to this study but its

relevance can be subjected to little modification. His stand that good knowledge of content schema can compensate for the lack of language schemata can be argued. Hence, knowledge of the three types of schema are sure way to effective reading comprehension.

2.4 Characteristics of Schemata

Anderson (1977:418-419), listed some characteristics of schemata as:

i. Schemata are always organized meaningfully, can be added to, and, as an individual gains experience, develop to include more variables and more specificity.
ii. Each schema is embedded in other schemata and itself contains subschema.
iii. Schemata change moment by moment as information is received.
iv. They may also be reorganized when incoming data reveals a need to restructure the concept.
v. The mental representations used during perception and comprehension, and which evolve as a result of these processes, combine to form a whole, which is greater than the sum of its parts.

Similarly, Stein and Trabasso (1982) as cited in Ormrod (2006) maintained that schemata are thought to have the following features:

i. Schemata are composed of generic or abstract knowledge; used to guide encoding, organization, and retrieval of information.
ii. Schemata reflect prototypical properties of experiences encountered by an individual, integrated over many instances.
iii. A schema may be formed and used without the individual's conscious awareness.

iv. Although schemata are assumed to reflect an individual's experience, they are also assumed to be shared across individuals (at least within a culture).

v. Once formed, schemata are thought to be relatively stable over time.

vi. We know more about how schemata are used than we do about how they are acquired.

Another important feature of schema theory is that, during the reading process, both top-down and bottom-up processing are taking place simultaneously. Hence, it is from this perspective that schema theory is said to be interactive (Vacca and Vacca,1989 cited in Olaofe and Masembe, 2006). In the same vein, through bottom-up processes, the reader receives facts concerning a situation being presented whereas through top-down processes, the reader activates appropriate memories of similar experiences and adds a great deal to the actual text.

Therefore, the primary goal of this work in relation to reading comprehension would be to instill in the students the consciousness of been aware that they need to apply their schemata when confronted with any reading task. They should equally be aware that schemata are structured and organized; it changes as a result of new information and it is formed and used consciously or unconsciously. And that schema should be structured and activated in the brain in such a way that it affects the comprehension of a text. In the same vein, when new information comes in little modification takes place to suits the present task. Hence, for comprehension to take place, there is need to adopt all the aforementioned features of schemata by the reader as consciousness of the readers in all would increase reading comprehension.

2.5 Functions of Schemata

Since a reader's schema affects both learning and comprehension of the information and ideas of a text, it is important for teachers and students to understand the functions of schemata if they

are to consciously activate such faculties and put them into effective use. Thus, Anderson (1984) proposed six functions of schemata. It will suffice to explain each below:

1. Schemata provide slots for assimilating additional knowledge. That is to say, a schema provides additional scaffolding for assimilating text information. Hence, good schematic knowledge can serve as a useful tool in improving second language learners' performance in reading comprehension because it provides additional clues to the understanding of any discourse type.
2. Schemata aid in judging what is important. A schema facilitates selective allocation of attention. A schema provides part of the basis for determining the important aspects of a text. It is hypothesized that skilled readers use importance as one basis for allocating cognitive resources. That is, for deciding where to pay close attention to when confronted with any reading task. Hence, second language readers' performance can be evaluated by the amount of linguistic, formal and content knowledge they have about the text they are reading.
3. Schemata aid in making inferences. A schema enables inferential elaboration. No text is completely explicit. A reader's schema provides the basis for making inferences that go beyond the information literally stated in a text.
4. Schemata help summarize and edit materials. Since a schema contains within itself criteria of importance, it enables the reader to produce summaries that include significant propositions and omit trivial ones.
5. Schemata activated in reading facilitate an orderly memory search for relevant information. For instance, a person attempting to recall the food served at a fine meal can review the categories of food typically included in a fine meal: What was the appetizer? What was the soup? Was there a salad? And so on. In other words, by tracing through the schema used to

structure the text, the reader is helped in gaining access to the particular information learned when the text is read.

6. Schemata function in inferential reconstruction. When there are gaps in memory, a schema, along with the specific text information that can be recalled helps generate hypotheses about the missing information. For example, suppose a person wants to recall what beverage was served with a fine meal. If he can recall that the entry was fish, he will be able to infer that the beverage may have been white wine.

Similarly, Byrness (1996) was of the opinion that "Schemata serve several functions in learning: categorizing, remembering, comprehending and problem solving". He stressed that "schemata or prior knowledge links categorize our experiences more efficiently for processing. This categorization of information facilitates the processes of remembrance (recall), and comprehension (understanding), all of which make problem-solving more productive". Concurring to what Byrness stands are, Alba and Hasher's view cited in Santrock (2008) maintained that "Schema facilitates the selection of information based on our interests. In the same vein, once selected, the schema enables the selected material to be organized abstractly and assist the individual in the processes of interpreting and integrating the new material, based on what he or she knows already". Alba and Hasher's view has shortcoming, a reader when confronted with a reading task he/she does not have any interest in, will be faced with the challenges of deciphering meaning from the task because the task does not interest him in any way. As such, there view that schema facilitates the selection of information based on our interest is crippled in this study.

However, two processes are involved in the utilization of schema: schema identification and schema application. The former one is essentially a pattern recognition process and a data- driven

process. That is, the schema is essentially activated by information that is available to the reader just before the schema is identified. Once a schema has been identified, the schema invokes a number of processes in a conceptually driven fashion, which is governed by the content and procedures provided by the schema. Similarly, schema application is necessary to second language readers' because it aids in the assimilation and understanding of a text.

The following are considered relevant for the comprehension of a text: schemata are interested in helping people assimilate information, select the focus of information, infer the elaboration of information, sequence the search of information and reconstruct information.

2.6 Schema Modification Processes

Three processes/folds are proposed to account for the modification of schemata or what Olaofe and Masembe (2007) referred to as features that make schema theory plausible as the basis for a reading comprehension approach.

i. **Accretion:** This involves fitting new information into the old (existing schema) without causing any changes. Resnick (1984) referred to this as schema instantiation. New information is remembered in the context of an existing schema, without altering that schema. For example, suppose you go to a book store and everything you experience there is consistent with your expectations for a bookstore "experience". You can remember the details of your visit, but since they match your existing schema, they do not really alter that schema in any significant way. *(Note that this is analogous to Ausubel's derivative subsumption).*

ii. **Tuning:** This involves existing schemata undergoing modification/changes in order to accommodate the new information. New information or experience cannot be fully accommodated under an existing schema, so the schema evolves to become more

consistent with experience. For example, when you first encountered a bookstore with a coffee bar, you probably had to modify your bookstore schema to accommodate this experience. *(Note that this is analogous to Ausubel's correlative subsumption.)*

iii. **Restructuring:** When new information cannot be accommodated merely by tuning an existing schema, it results in the creation of new schema. This takes place when the reader cannot make sense of what is being read using existing schemata (Olaofe and Masembe, 2006). For example, your experience with World Wide Web-based bookstores may be so different from your experience with conventional ones that you are forced to create a new schema. *(Note that this may be similar to Ausubel's superordinate learning, or combinatorial learning, depending on the situation.)*

For the purpose of this study, the following can be adopted with little modifications. Schemata activated facilitate the comprehension of a text because it (schemata) provides slot for new knowledge. In the same vein, reading comprehension is best achieved when a credible approach is adopted-schema credibility folds (Accretion, Tuning and Restructuring). The aforementioned will be relevant in the area of activating students' schemata before reading.

2.7 Schemata and Second Language Learners' Reading Comprehension

Research on the theory of schema had great impact on understanding reading comprehension in first and second language. Reading was long ago compared to a "psycholinguistic guessing game" (Goodman, 1971:260), during which the reader makes an effort to understand what is conveying and creates meaning out of a text in light of his/her world experience. In line with this model, schema theory has caught a substantial amount of attention in recent development of second/foreign language reading instruction. While reading, the reader receives information contained in a text and simultaneously searches for an appropriate slot in

his/her concept to accommodate the newly acquired knowledge so as to understand the text information. Reading, as a matter of fact, is an interaction between the information presented in a text and prior knowledge growing out of the world experience of the reader. Empirically, positive results were found and widely recognized for second/foreign language reading if the learner was previously instructed to build an appropriate knowledge framework relating to the topic via explicit or implicit teaching (Pearson & Johnson, 1978; Langer, 1981; Stevens, 1982; Carrell & Eisterhold, 1983).

The brain does not remember facts -it remembers connections. Information is only meaningful to the brain when it is connected to something else. In this way new information is contextualized, and the more thoughts an idea is associated with-the more value it has in the brain. When readers make connections between their schema and a book, their comprehension improves. Most, if not all, research in schema theory seem to agree that when students are familiar with the topic of the text they are reading (i.e., possess content schema), aware of the discourse level and structural make-up of the genre of the text (i.e., possess formal schema), and skillful in the decoding features needed to recognize words and recognize how they fit together in a sentence (i.e possess language schema), they are in a better position to comprehend their assigned reading. Deficiency in any of the above schemas will result in a reading comprehension deficit. As Carrell (1988:245) points out, "students' apparent reading problems may be problems of insufficient background knowledge (content, formal, and linguistic)". However, as further pointed out by the same author, students might have sufficient schemata, yet unable to comprehend the text if such schemata are not appropriately activated.

From what have been discussed above, it can be deduced that prior knowledge, in the form of schema, influences our comprehension to a greater degree than earlier research would have

suggested. So powerful is the influence of prior knowledge on comprehension that Johnson and Pearson (1982) have found that prior knowledge of a topic is a better predictor of comprehension than is either an intelligence test score or a reading achievement test score.

In reading instruction, we talk about three different kinds of connections that readers make to the text:

i. Text-to-Self

When a reader makes a text-to-self connection, he is drawing upon his own personal life experiences to connect with the text. For example, a reader may say, "Hey", I have been to the beach before and my dad and I walked along the shore looking for starfish prior to reading a book about the seashore. Questions that facilitate making text-to-self connections: Has this or something like this ever happened to me? How similar or different is this to my life? What does this remind me of in my own life?

ii. Text-to-Text

A text-to-text connection occurs when a reader makes a connection between a text that he will be or is reading to another text. A reader may make a connection between texts written by the same author, a story of a similar genre, or another book or article on the same topic. Questions that facilitate making text-to-text connections: Does this remind me of another book I have read? Have I read about this topic before? How is this similar or different from other texts I have read?

iii. Text-to-World

A reader makes a text-to-world connection when he connects what he is reading to ideas and events occurring in the world. Readers have ideas of how the world works that go beyond personal experiences and what was read in previous texts. Readers learn about the world and events through a variety of media and other means such as conversations with others.

2.8 Using Schema Theory to Develop Reading Comprehension

The following are the steps for developing reading comprehension via schema theory as suggested by the researcher:

i. Decide on the reading comprehension passage (topic)

ii. Engage the students in thorough brainstorming around the topic

iii. Write down related lexical items based on the brainstorm had

iv. Discuss issues that are related to the reading comprehension passage

v. Allow the students to visualize round related issues discussed-drawing inferences or mental picture of the text which is about to be read

vi. Reading of the comprehension passage properly

vii. Carry out comprehension monitoring: This involves checking or noticing what you are doing when you are reading and also being aware of how you do it (also called *meta-cognition* or thinking about how you read).

viii. Make a text-to-self connection of what you are reading by drawing upon your personal life experience

ix. Make a text-to-text connection by relating text A (Previous text studied) with text B (Present reading comprehension text)

x. Make a text-to-world connection by relating ideas or events you are reading with the world (content schema)

xi. Recall: Think about important points you read about and connect to other experience to increase your comprehension ability

xii. Attempt the reading comprehension questions

Going by the review made so far, the following are considered relevant to this study: developing reading comprehension via schema theoretical procedures, making connections to text, text-to-text connection, text-to-self connection and text-to-world connection and above all culminate in effective reading comprehension.

2.9 Schema Theory and Reading for Literal Comprehension

Reading for literal comprehension refers to the ability of students to understand what is overtly stated in the text. This requires the knowledge the learners acquired from the text which does not apply to the knowledge and the experience of the reader (Yusuf, 1996; Olaofe, 1983 and Grellet, 1981). When the writer makes false assumptions about the extent to which the reader is likely to share his knowledge, belief, the reader may be conscious of having struggled to understand which may sometimes fail. Reading is worthless unless students understood what they read. Literal comprehension involves relating the words and clauses in the sentences to other information in the text. Literal comprehension questions are those whose answers are directly and explicitly available in the text. The reader, in this type of comprehension exercise is required to get the primary or direct dictionary meaning of a word or an idea from the passage. The required information can be easily extracted from the linguistic output of the text. The intended literal message is read and then sent to the mental faculty as an input that should only be accepted and regurgitated without making any attempt to modify, clarify, critique etc.

Each sentence of a connected discourse contains some new information as well as some old information that are redundant with the preceding sentences (Halliday, 1994 and Joanne, 1996). The new information fulfilled the function of communicating new knowledge. But how does the reader knows what information is old and which is new? The distinction must be communicated because the two kinds of information are treated quite during literal comprehension.

There are different linguistic devices that signal constituents that are old and new. In some cases, the linguistic structure that the writer uses depend upon what he thinks his reader already know and what he is trying to communicate as new information. Halliday (1994) suggested that the information marked as old in a sentence should usually correspond to the pointer. This demonstrates the fact that, such correspondences facilitate comprehension by examining some linguistic schema structures, formal schema patterns and perhaps the content of a discourse that explicitly marked the old and the new information in a sentence.

The following can be adopted for this study: Literal comprehension of any text type is best achieved or reached when the required information can be easily extracted from the linguistic (linguistic schema) output of the reader as well as the text. Similarly, it is at its best when a reader put its schema into use while reading any discourse type.

2.10 Schema Theory and Reading for Inference

Inference can be made from context and for inference to be possible enough from context there should be enough clues to signal it (Nuttal, 1989 and Ullman, 2004). Experience readers learn the meanings of great many words from reading without checking it up from the dictionary. They make use of context in which the words occurred give a rough idea of it meanings. With every subsequent occurrence, the meaning became a little more precise. By reading for inference,

the writer may want the readers to draw deductions from the message being conveyed. Successful inferential reading will therefore, be enhanced by the ability to pay close attention to language forms and the consciousness to press into use one's life experiences (Aliyu, 2006). Aliyu's stand is quite acceptable, but successful inferential comprehension cannot only be limited to paying closer attention to language forms but both the formal properties and content (schema types) of a discourse are also paramount.

In most cases, meaning of a text may not be explicitly stated. MDG (2009) explained that learners should be led to understand that the relationship between sentences and paragraphs will help to bring out good inferential comprehension. To infer meanings, one would have to watch out for ideas not directly stated, though implied. Text may contain certain points that are full of hints related to some issues not overtly stated. The reader has to employ several language (linguistic schema) and socio-cultural (content schema) tools to make the correct inference. Hence, a good reader should draw deductions from a passage and apply schema theoretical model to facilitate speedy comprehension. Inference is a "*tricky skill"*. Problem of inference arise continually and can only be solved by caution, common sense and of course by taking the whole context into consideration. When confronted with any difficult word, note it down and go on with the reading exercise and infer its meaning from the way it is used. Through this, the reader will know when the writer says one thing and means another or when he does not say something and yet means it. Reading for inference demands a critical reading rather than a general cursory exercise (Olaofe, 1995). Olaofe's stand is quite strong enough to hold grounds. Hence, second language readers' when confronted with reading task of any kind must be critical in the reading exercise. As such, for inferences to be adequate, the need to be critical while reading becomes paramount because learners can only improve in inferential reading comprehension when they are made to be critical and conscious in the reading exercise.

Ellis (1994) and Grellet (1981) maintained that when a reader tries to infer in reading a text, he is trying to fish for unexpressed meaning from the text. This could probably be the reason why Grellet defined inference or inferring to mean "making use of syntactic (the patterns of sentences and clause), logical (pattern of development of the thought process) and cultural clues (personal experience and previous knowledge of the topic discussed) to discover the meaning of the unknown elements". Grellet's definition of inference is quite acceptable because his definition is in line with schema theoretical postulate of linguistic, cultural/content and formal schemata-all of which are in harmony with Grellet's view and when properly utilized will go a long way in minimizing poor reading comprehension performance. Inferential reading according to Olaofe (2014:66) involves the ability to:

i. Understand the passage very thoroughly;
ii. Read between the lines in order to infer what is not explicitly stated
iii. Determine relationships between the different parts of the text; and
iv. Put your previous experience and knowledge of the world to bear on what is being read.

For inference to have substance, Akmanjan, (2003) maintained that students must be able to specify (a) the tacit contracts people have with each other (readers and writers as in Grice cooperative principle). (b) the inference this contract leads to ; and (c) the way readers actually use the contracts in drawing inferences. This off course is the idea of schema theory postulate which maintained that readers should to some extent share certain linguistic, formal or cultural ideas together with the material or writers of the materials as this background idea can facilitate the comprehension of any kind. Questions for inference are those that oblige the students to read between lines, to consider what is implied but not explicitly stated.

Going by the review, the following deductions can be made as they relate to the present study. Second language readers, when confronted with any discourse type, should draw meanings of most words (lexical items) from the context of use as context from the review is a determinant factor to arriving at meanings of some words. Similarly, reading for inference requires a thorough analysis and tasking of the brain in order to dig-out issues that are not explicitly stated. Hence, second language learners reading performance can be best improved when readers are made to infer meanings from context. Thus, these would be relevant in the area of assisting students in activating their schemata in inferential reading comprehension.

2.11 Schema Theory and Reading for Critical Evaluation

Reading is indeed important and crucial because print is permanent in that the writer is not there to answer any question reader may pose. In this case, readers must be on the lookout always for strange path and associate connections. In as much as reading is done for meaning, but it is at the discretion of the reader to 'fish out' the meaning from the text and in the text (Warnick, 2000; Nuttall 1989; Morris, 1995 and Solarin, 1986). In this endeavor, whatever meaning of the text is arrived at becomes part of the reader's experience and knowledge. If the meaning is wrong from the beginning, he carries it round until new discovery is made. A single letter in the word may make a lot of difference to meaning, thus keeping permanent the meaning until a new discovery, the reader needs to reach this discovery quickly to set things right-to advance the thought about the topic being discussed. Otherwise, learners may get confused, feel frustrated and abandon the text for lack of meaning (Grellet, 1981).

Critical reading involves the reader's accurate knowledge and understanding of what the author says in the text. The reader must be critical of his own understanding of the text. A critical reader is provided with opportunities of employing the encyclopedia of his experiences in order to

pass judgments' on the reading texts. Oyotunde (1991); Aboderin and Dele (1981) observe that, it is easy to think the text says one thing when it actually says something else. Only a critical reader would be able to spot or detect facts from opinion or even personal opinion. To get at the meaning conveyed by the writer involves an uphill struggle. The reader can bring to the reading task so little of what the writer has taken for granted that the way forward is continually blocked by problems of unfamiliar vocabulary, ignorance of facts or intellectual limitations. Poor readers often do not understand; so recognizing that there are problems is the first step towards competence (Grice, 1975; Sinclair, 1990; Longe, 1978 and Mcquillan, 1994). In critical evaluative reading, students' attention is paid to the force of language that has been created through the words, sentence types and idiomatic expressions (Aliyu, 2006). Hence, students who are engaged in this level of reading can intelligently predict some points not direct stated by the writer.

An active reader according to Olaofe (1998); Paradis (1993) and Solarin (1989), reads ideas not words, discusses with the author rather than accept everything the author says. This is indeed the attribute of a competent reader, but then, the student would have to analyze the language that is the linguistic output of the text (linguistic schema), the style that is the formal or linguistic conventions (formal schema), ideas, facts and opinions of the author (content schema). To do this effectively requires maturity in reading not just being fast or being slow but being able to apply the most reading skills for the right kind of materials.

Olaofe (1998 and 2010) puts it that ability to read critically requires highly developed cognitive skills like drawing inferences, making judgments, and evaluating the validity of the author's ideas as analytical reading. This is in line with schema postulation theory of reading which requires an active engagement of a readers' cognitive background knowledge to the incoming new information to be learn. This stand is relevant as analytical reading is an intensely

action process that involve literal understanding and the ability to interpret what the author means. Once a reader understands and interprets the author's message, if learning is to be effective, the reader must also scrutinize the message to isolate the grain from the chaff. Such probing according to Solarin (1989) occurs through reflecting upon and reacting to what has been said. At the critical comprehension level therefore, the reader's previous experiences about the field of discourse counts a lot in making and presenting a copious evaluation of the material. The key to analytical reading is asking questions and students who constantly seek application in reading are the ones who most easily learn to read critically. In summary, critical/analytical comprehension level involve reading/listening to explicitly stated points and using those points, the content and other discourse situations (content, linguistic and formal schema) to arrive at points not explicitly stated. Such covert meanings could be the speakers' bias, personal opinion, propaganda and so on.

2.12 Schema Activation and Construction

Cooper (2000:10) believes that "the process of comprehension depends on the reader's schemata, the more closely those schemata match the schemata intended by the writer, the easier it is to comprehend the text". Reading teachers have found that activating a learner's schemata enables him to better process information that he is reading. However, a foreign language reader who does not possess such knowledge or schemata can experience schema interference and encounter difficulties. It is commonly accepted that there are three factors affecting reading from the perspective of schemata: First, the schemata in the reader's mind are not activated. In other words, the information the author provides cannot activate the schemata in the reader's mind. Some students' apparent reading problems may be problems of insufficient schema knowledge. Information that does not fit into these schemata may not be comprehended correctly or may not be comprehended fully. Second, the reader may have his own explanation for the text with his

prior improper schema structure, but his explanations are widely divergent from the conveyed meaning in the text and results in misunderstanding. The third one is that the reader lacks the proper schema. That is, the reader does not have the knowledge structure that the author expects, and cannot understand the reading material with the proper schema. Thus, the reader will have trouble understanding.

Schema activation is generally recognized as the process in which some textual stimuli signal the direction or area for the reader to look for and evoke the relevant schema from memory into the present reading task (Peng, 2002). Texts are never completely explicit. Hence, the reader must rely on preexisting schemata to provide plausible interpretations. Educators and researchers have suggested numerous instructional strategies to help students activate and use prior knowledge to aid reading practice. For example, reading the heading and the title, making predictions based on the title and pictures.

Learning new concepts may require a reader to connect new information with a corresponding mental model (Schema Construction). Mental models represent an individual's construct of existing knowledge and new information in a certain field. The mental process will create a new schema if new information cannot be accommodated by an existing schema. For example, someone may hold a belief that balls are round, are made to bounce. However, he may encounter a football that is kicked or thrown, or a bowling ball that is solid and has holes drilled into it for the purpose of rolling rather than bouncing. This new knowledge is integrated into a new, more complex, mental structure about the shape, substance, form and function of balls. As a result, new knowledge of schema or mental structure is constructed.

2.13 Activating Students' Prior Schemata

Schema theory indicates that the activation of background knowledge prior to and during instruction of new information is paramount. Reading problems are not just caused by schema deficiencies, the relevant schemata must be activated (Carrell 1988). When teachers teach a new text, they should activate the previous knowledge promptly to check if the content of the text is familiar to the learners. In this way, the learner's positive transfer of his knowledge can be carried out efficiently. In the same way, unsuccessful activation of the existing schemata would likely result to poor understanding. Therefore, second language teachers should first of all help the students to activate their schemata. In the same vein, Cook (1989: 69) states that "The mind stimulated by key words or phrases in the text or by the context activates a knowledge schema". This view clarifies that schemata are activated in one of two ways:

1. New information from the outside world can be cognitively received and related to already known information stored in memory through retrieval or remembering. In this case, new concepts are assimilated into existing schemata which can be altered or expanded.
2. New information can be represented by new mental structures. In this case, in absence of already existing schemata, new knowledge builds up new schemata.

According to Plastina (1997), in both cases, the individual is piecing bits of knowledge together, attempting to make sense of them. It follows that the main features of schemata are flexibility and creativity. Schemata are flexible in that they undergo a cyclic process within which changes are brought about actively and economically, that is, information is stored in memory and provided when needed with the least amount of effort. Plastina's view that schema is creative, is quite debatable to some extent, his stand that, it can be used to represent all types of experiences and knowledge is limited to some extent because not all text are the same. As such, the view can

be strongly decried in this study. Carrell and Floyd (1987) maintain that second language teachers must provide the students with appropriate schemata s/he is lacking, and must also teach the student how to build bridges between existing knowledge and new knowledge. A number of organized pre-reading approaches and methods have been proposed for facilitating reading through activation of background knowledge.

From the foregoing discussions, it is obvious that reading can be best facilitated when readers activate their schemata (linguistic, formal and content) to a reading task appropriately.

2.13.1 Pre-Reading and Schema Activation

The purpose of pre-reading activities is to motivate the students to want to read and to prepare them to be able to read (Chastain, 1988). The use of appropriate pre-reading techniques-widely regarded as a crucial element in fostering an active and productive use of learners' background knowledge has now become common practice in second language learners' reading lessons (Williams, 1984; Williams and Moran, 1989; Tudor, 1989). These preparatory activities serve three main purposes, namely i) activate learners' relevant knowledge, ii) build up that knowledge and iii) serve as a conceptual guidance in the reading of the text because the major emphasis in the past has been on the product rather than the process.

Pre-reading tasks have tended to focus exclusively on preparing the reader for what Ringler and Weber (1984) called *pre-reading activities*, *enabling activities*, because they provide a reader with necessary background to organize activity and to comprehend the material. These experiences involve understanding the purpose(s) for reading and building a knowledge base necessary for dealing with the content and the structure of the material. They say that pre-reading activities elicit prior knowledge, build background, and focus attention. However, pre-reading activities may not just offer compensation for second language reader's supposed linguistic or

socio-cultural inadequacies; they may also remind readers of what they do, in fact, already know and think. That is, to activate existing schematic knowledge.

Carrell (1988:245) lists numerous ways in which relevant schemata may be constructed, including visual aids, real-life experiences, discussion, text previewing, introduction and discussion of key vocabulary, and key-word/key-concept association activities. Examples of such contextualization include, for example, showing pictures of a city before asking the students to read a text about that city, or playing a video clip from a film adaptation of a novel a class is about to study.

The experience-text-relationship (ETR) method of Au (1979) consists of students expressing their own experience of knowledge about the topic prior to reading. After the students have adequately shared their knowledge, the text becomes the focus of the class. Through this process, student's schemata become redefined and extended.

The purpose of helping the student to link his/her background knowledge with concepts in the text is to set up appropriate expectations about the language and content (linguistic and content schema) of the passage. Harmer (1991) buttressed this further by saying: "We will not get students to interact properly with spoken or written materials unless we ensure that their desire to read (or listen) has been awakened". Zhang (1993) summarized that "comprehension is facilitated by explicitly introducing schemata through pre-reading activities", so the pre-reading activities are very important in activating the relevant schema. Auerbach and Paxton (1997: 259) suggest the following pre-reading strategies that could facilitate schema activation of which three major ones are good indications of schema theory-based pre-reading tasks/strategies: Writing your way into reading (writing about your experience related to the topic), asking questions based on the title, semantic mapping, making predictions based on previewing, identifying the text structure,

skimming for general idea, reading the introduction and conclusion, and finally, writing a summary of the article based on previewing.

1. Previewing

Swaffar et. al (1991) point out the benefits of previewing technique that allow students to formulate hypotheses about the text. By taking advantage of contextual clues –titles, headings, pictures, students are encouraged to draw inferences prior to reading. In addition, Swaffar views identification of text genre: articles, poetry, nonfiction, and plays, as very important preview exercise. She suggests that engaging in this type of analysis enables students to identify the probable rhetorical grammar, stylistic markers and possible constraints on the development of ideas.

According to Chia (2001), the aim of previewing is to help readers predict or make some educated guesses about what is in the text and thus, activate effective schema processing for reading comprehension. Several stimuli in a text, such as the title, photographs, illustrations, or subtitles, are usually closely connected to the author's ideas and content. So, based on any of them, students can make predictions about the content of the text (content schema). To make more specific predictions about any reading comprehension, students obviously need more guidelines. The following guidelines can help:

1. Ask the students to read the title of the article. Do they know anything about the subject?
2. Have the students read the first few paragraphs, which generally introduce the topics discussed in the text. Can they determine the general themes of the text?

The above review, clearly reveals that for any reading comprehension type, second language readers need to activate there background knowledge before delving properly into any reading venture.

2. **Questioning.**

Some pre-reading activities simply consist of questions to which the reader is required to find answers from the text. Traditionally, this question moves along with the text and is designed to test comprehension, but in more recent materials, questions often precede the text and function as scanning tasks.

Williams (1987) gives an interesting three-phase (pre-reading, while-reading, and post-reading) approach to reading, with particular attention to the pre-reading phase. The approach begins by introducing the topic of the passage that students are going to read. Once the topic is presented, students are asked to work in groups and write a list in two columns. The first column lists things about the topic that they are sure of, and the second, lists things that they are not sure of or do not know. See for an example of what a list about whales might look like:

Sure	**Not Sure /do not know**
1. Whales are not fish	1. How many kinds?
2. The largest are 40 meters long.	2. How long do they live?
3. There are different kinds.	3. What do they eat?
4. They are used to make soap	4. How fast can they swim?

Williams suggests that each member of the group in turn volunteer a fact or question, so that no group member is neglected. Afterwards, the teacher asks a representative from each group

to write one or two items from their lists on the chalkboard so that some interesting items, which other groups may not have thought of, can be included with this their schema is activated and built on the subject of discussion.

3**. Semantic Mapping**

Semantic mapping, in literacy, is a strategy for graphically representing concepts by constructing a semantic map. It is a graphical model designed to help students identify important ideas and how the ideas fit together in a text. According to Chia (2001), many teaching techniques have been developed to activate student's prior knowledge for effective top-down processing in order to facilitate reading comprehension. Several of them have been empirically proven to be helpful, but some have not. It is also argued that most vocabulary is learned through context, but that the learning- from-context method is at its best for teaching learning-to-learn skills not for teaching vocabulary (Steinberg. 1987; Oxford and Scarcella, 1994).

Williams (1987:1) suggests that pre-teaching vocabulary probably requires that the word to be taught are semantically and topically related sets so that word meaning and background knowledge improve concurrently. Zimmerman (1997) maintains that direct vocabulary instruction focusing on semantic mapping as an acquisition strategy is more effective than vocabulary acquisition activities that teach only words rather than strategies for acquiring words. Zimmerman's stand is quite limited to some extent because areas that the study is interested in has not been given much attention in his work as such his claim is considered irrelevant in this study.

4.Discussion

This requires careful planning on the part of the teacher as well as on-the-spot decisions during the discussion. A discussion is an interactive procedure whereby the teacher and students talk about a given topic. It is not simply the teacher telling students a body of information, but students should interact with one another as well as with the teacher. Sometimes the teacher can ask students to discuss the physical features of a text such as headings, illustrations, charts, etc, to activate their prior knowledge. Many students do not automatically draw their prior experiences on a particular subject, but as they listen to other students sharing information, they come to realize that they indeed know something about the reading topic.

The teacher asking questions about the topic can best direct discussion. By discussing these questions, the students may conjure up their own experience and gain some background knowledge from schemata stored in their mind.

5.Brainstorming

Brainstorming refers to the activity that provides second language readers with a great chance to produce original ideas when their minds are allowed to run freely in attempting to solve problems. The ideas must come freely and without regard to their feasibility, in other words, think now, evaluate later. Cooper (2000) opines that "brainstorming requires students to tell all they know about a particular topic or idea, which begins to activate their prior knowledge". Cooper's view is in line with the idea of schema activation postulation theory. In detail, the teacher may take the approach of giving the class a particular key word or key concept, or the title of the text and then encourage the students to write words, ideas, or phrases they know about the given topic. For example, given the title "How stamps came into use?" the students will conjure up the following words and phrases: envelope, send a letter, send a postcard, post office, receive a letter,

postage, etc. Therefore, readers' schemata concerning "stamps" will be activated and the students will build up confidence. Succinctly, this activity will stimulate students' creativity to read bearing in mind the paramount role that there background will play during the reading process.

6.K-W-L Plus

"K" stands for what students already know; "W" represents what they want to know; and "L" is what they have learned. "Plus" refer to mapping (Farris, 2004). The "K" according to Farris is closely related to schema theory which is background knowledge the students already have that will trigger up the new information that is coming in. Farris view is quite acceptable because his view is the basis for learning new concepts or ideas. The activity begins with students listing everything they know about a topic. The students then think about what they want to know about the topic. At last, they read the passage and summarize what they have learned. Second language teachers should draw on the board, three columns labeled: "Know", "Want to know", and "Learned". Students write the same columns in their notebooks. The teacher shows the students some pictures and other graphics about the text that they will read. The students then discuss what they discovered with a partner and then discuss it as a whole class. They write down what they know about the text in the first column. Next, the students write down what they want to know about the text in the second column. At last, the teacher will ask the students to read the text and share what they have learned with their partners. After class discussion, the students write down what they have learned in the last column. Here is a sample of a learning text- "Ants".

K (Know)	**W** (Want to know)	**L** (Learned)
Ants live together.	Where do they live?	They live in large nests.
They are very small.	What is a queen ant?	A queen ant is a mother ant.
Queen Ant	What is a queen's ant job?	Laying eggs.
Work Ant	What is a work ant's job?	Collecting food.

More so, Krashen (1993) suggests two ways to activate the students' schemata. The first is *Free Voluntary Reading*. Here, students are made to select and read texts that are of interest to them, with no need to worry about accountability. His second suggestion is to have them read in their first language so as to build up the knowledge base necessary to understand the material in the second language. Krashen's second suggestion is equally in line with schema postulate because it has to do with reader's familiarity with a subject matter (content schema). This means that second language readers should to some extent have a reasonable knowledge level of the subject matter of any discourse type they want to read and where this is achieved the problem of slow and poor reading will be reduced.

Other suggestions as to how students' schematic knowledge can be increased and enriched are:

Build on What they Already Know

Question students as to what they already know (the acronym "k" under k-w-l plus) regarding the assigned selection. Expand on the terms and information they already understand.

Real-Life Experiences

Actual experience is the best way to develop and refine the schemata that make up readers' prior knowledge. To impact a student's memory, they must see, touch, use, and experience real objects or situations. If possible, provide any real-life experiences that have to do with the assignment.

Vicarious Experiences through Wide Reading

Wide reading is important in providing students with information about people, places, events and situations. Even though direct experience is preferred, many times it is not possible. However, experiences lived vicariously through reading, can produce tremendous results.

Cultivating Students' Vocabulary

Vocabulary building is one of the most critical areas of second language reading. Vocabulary plays an important role in the understanding of a text. Many second language readers lack adequate vocabulary and these serve as obstacle to text comprehension (Levine and Reves, 1990). Levine and Reves's view holds a strong ground in this study as students deficiency in linguistic schema, will affects comprehension drastically.

Teaching Vocabulary in Context

Guessing unknown words from context is one of the most important reading skills that students must acquire. When reading a text, many students feel they must stop and look up every unfamiliar word in a dictionary. For example: knowing the meaning of prefixes, suffixes, and roots can be a strategy to guessing the meaning of unfamiliar vocabulary. The students should be aware that context can be used to figure out the meaning of a word. Then they will often be able

to use context to determine the meaning of an unfamiliar word and thus to make sense of the sentence. Here are the steps:

Step 1. Look at the unknown word and decide its part of speech.

Step 2. Look at the sentence containing the unknown word.

Step 3. Look at the relationship between the sentence containing the word and other sentences or paragraphs.

Step 4. Try to guess the meaning of the word.

Step 5. Check whether your guess is correct or not.

It would suffice to buttress further by using Goh, (2002) and Nunan, (2007) stands on the techniques of activating existing schemata. Observing the difficulties students often have, it is suggested that schema building activities help them overcome these troubles. Goh and Nunan argue that "comprehension relies on readers' successful activation of their prior knowledge (schemata)".

However, below are some of the techniques of activating stored or existing schemata as reviewed above.

Activity	**How to do**	**Purpose**
Brainstorming Mind-mapping	Call out related words or phrases to be put on the board. Write down words or draw simple pictures in a web	Those knowledge-oriented activities aims to prepare students by encouraging them to activate stored schemata or acquire relevant types of world knowledge, which will facilitate top-down processing.
Discussion	Discuss similar or related issues based on prompt questions or pictures	
Games	Simple word or information-gap games	
Guided-questions	Guess answers to question on the text	
Picture/Diagram	Complete illustrations with simple drawings or words	
Prediction	Predict contents, characters, setting or sequence of events	
Elimination	Identify the odd one out from a group of pictures or words/phrases	
Skimming	Read a related short text for gist	

The above stated steps as to how students schemata can be developed and the ones given by Gog (2002) and Nunan (2007) will be adopted for this study because they are in line with one of the problems raised for the study.

2.14 Previous Studies on the Application of Schema Theory to Second Language Learners' Reading Comprehension

Several researchers have attempted to ascertain children's concepts of reading prior to entering schools and while in school at various grade levels. Implicit in these studies has been the thesis that students' concepts of reading have an effect on their acquisition of reading skills and on their desire to read. Denny and Weintraub (1963:326) conducted a longitudinal study of 111 subjects in five first grade classrooms. The children came from "widely divergent socioeconomic

backgrounds: rural, all-Negro, middle-class, and lower-class schools". Denny and Weintraub noted that children from higher socioeconomic homes and children having kindergarten experiences gave more detailed and descriptive responses to the question. They also suggested that early reading instruction ought to be directed more towards aiding children to conceive of reading as a thinking and meaningful act. For the same sample of subjects, Denny and Weintraub (1966) reported responses to the question: "What must you do to learn to read in first- grade?" The authors reported that 34% of the subjects' responses were not meaningful; 42% of the students indicated that "a passive type of obedience or dependence on someone else was required to learn to read;" only 24% gave responses indicating that they had to take some action in learning to read "read to myself; look at pages, books, pictures". As in their earlier article, Denny and Weintraub expressed surprise at finding so many students who apparently had no idea of what reading is or what one does to learn to read. Hence, Denny and Weintraub (1963:447) stated:

> *Most research on learning supports the proposition that it helps the child to learn if he knows the reason for a learning situation and sees a purpose in a task. In as much as reading is not nonsense learning, but a complex mental process, it may be important to identify it as such and to help beginners establish purposes for wanting to learn to read.*

The above, clearly reveals that Denny and Weintraub's study only stopped at the establishment of the purpose of reading to readers. They have failed in the area of encouraging learners to activate their schemata before and after reading. Hence, this study hopes to touch the area of cognition as it relates to schemata of second language readers. Downing (1969) reported some preliminary data gathered by Reid (1966) from twelve 5 years old, in their first year of school in Britain. Reid interviewed each student three times-at the start of the school year, towards the middle, and at the end of their first year. She concluded that the children interviewed perceived reading to be a "mysterious activity, to which they come with only the vaguest of

expectancies". The children lacked specific-expectancies of what reading was going to be like, did not know what activities were involved, and had no clear notion of the purposes of reading. Reid suggested that students might benefit from direct assistance in developing more appropriate perceptions of the terminology and tasks of reading. Reid's findings, while supported by some preliminary data gathered by Downing, seem to contradict in part the information reported by Mason (1967) on preschoolers' concepts of reading. Mason interviewed 178 children. Most of these children came from homes where at least one older family member read frequently. Mason's subjects thought that they could already read and wanted to learn more about how to read. However, since most of them could not read, Mason cautioned teachers that a first step in teaching such students to read would be to make them aware of the nature of reading and the skills needed to read.

Apparent inconsistencies between Reid's findings and the findings of Weintraub and Denny and Mason seem less disturbing than the points of agreement: young children entering school, including first graders, do not appear to know that reading is a communication process. Their schemata for reading may include slots for reading materials, for notions of how one reads fast, fluently, with expression. However, many children appear not to know that an effort to make sense of text is essential in reading as such the knowledge and use of background knowledge while reading becomes paramount since Weintraub and Denny and Mason have failed to incorporate that when teaching a reading.

Johns conducted a series of studies which attempted to describe the relationship between students' concepts of reading and reading achievement (Johns & Ellis, 1976; Johns, 1974; Johns, 1970). He used an interview format to gather students' responses to three questions: "What is reading?," "What do you do when you read?," and "If someone didn't know how to read what would you tell him/her that s/he would need to learn?. Johns (1972) reported finding a significant,

positive correlation between the judged maturity of students' concepts of reading and reading achievement as measured by grade equivalent scores on the Gates-MacGinitie Reading Test. Johns and Ellis (1976) analyzed the results of interviews with students from grades one to eight who "… appeared to represent socioeconomic status ranging from upper, middle class to lower class". Johns and Ellis concluded that many students have little or no understanding of reading across the grades, that most of the meaningful responses to their questions described reading as a decoding process, and that many children view reading as an activity occurring with a textbook in the classroom or school environment. While Johns and Ellis study is one of the most relevant to the topic under consideration, it suffers from several limitations such as activity that many children view as textbook and classroom activities alone that must be addressed before any conclusions can be drawn about the relationship between a student's schema of reading and reading comprehension performance. Hence, the need to research on how learners should apply their schemata while reading becomes paramount since John and Ellis did not cover the area.

A significant amount of research has been conducted by second language reading researchers indicating that reading comprehension and reading skills are enhanced when prior knowledge is activated. Today, the claim that background knowledge is an essential determiner of reading comprehension is relatively well developed and generally agreed upon in the literature on first language reading comprehension (Spiro and Anderson 1978; Adams and Collins 1979; Bransford 1979; Adams and Bruce 1982). These and other studies give evidence that patterns stored in the mind (Sowa 1984:43) are imposed on texts, thus determining processing and understanding of written as well as oral discourse (Bower 1976; Bransford and Johnson 1972, 1973; Tannen, 1979). Schema theory has a big impact on second language learners reading comprehension. It has concentrated attention on the role old knowledge plays in acquiring new knowledge, and has highlighted the specific techniques in the reading process in second language.

The very important role of background knowledge on reading comprehension is noted by Carrell and Eisterhold (1983) and Anderson (1999) cited in Erten and Razi, (2009), that a reader's comprehension depends on his/her ability to relate the information s/he gets from the text with prior knowledge. Studies revealed that an appropriate employment of formal schemata plays a significant function in reading same applies to content schema which can be the key to understanding of a text. Jun (2007) argued that:

> *"Content schemata affect comprehension and remembering more than formal schemata do for text organization. Readers remembered the most when both the content and rhetorical forms were familiar to them while unfamiliar content may cause more difficulties in correct comprehension.*"(p.21)

Application of schema theory in teaching reading has revealed that comprehension relies significantly on readers' successful activation of their formal knowledge (schemata). Hence, schema theory plays an important role in reading which this study concerns itself with. This study will concern itself with areas like what learners already know, what they want to know, and their prior knowledge which scholars like Ellis and John (1976) have failed to carry out an in-depth study on.

Furthermore, the theory postulates that texts do not contain any meaning by themselves; rather, it is the reader that constructs text meanings from their existing knowledge, the structure of which is called *"schema"* (Anderson & Pearson, 1984; Carrell, 1984). While reading, the reader receives information contained in a text and simultaneously searches for an appropriate slot in his/her concept to accommodate the newly acquired knowledge so as to understand the text information. Empirically, positive results were found and widely recognized for second language reading if the learner was previously instructed to build an appropriate knowledge framework relating to the topic via explicit or implicit teaching (Pearson & Johnson, 1978; Langer, 1981; Stevens, 1982; Carrell & Eisterhold, 1983).

A research done by Carrell (1985:730) gives empirical evidence that "the rhetorical organization of a text interacts with the English as second language reader's formal schemata (that is, higher background knowledge of and experience with textual organization) to affect reading comprehension". She found that teaching different forms of textual organizations like the patterns of cause and effect, comparison and contrast, problem and solution, and collection of description can actually improve ESL reading comprehension. Carrell's study is limited in some areas because his study has failed in the area of instilling the consciousness of schema activation on readers.. Hence, this study hopes to touch the area of schema activation on readers. More profoundly to be set forth, Talbot and Allen (1991) explored the impacts of various schemata, such as cause and effect, problem/solution, contrastive and description schema. They came to this conclusion that the first three ones correlated with one another more closely than the last schema. That is, the participants who dealt with the first three schemata except the descriptive one could recall more information from the text. They also found that different formal schemata of the text had an effect on reading comprehension if they were more strongly controlled schema.

In other words, readers may come to a text with prior knowledge but their schemata are not necessarily activated while reading so "pre-reading activities must accomplish both goals: building new background knowledge as well as activating existing background knowledge" (Carrell 1988:248). Particularly useful and popular here, are questioning and brainstorming, where learners generate information on the topic based on their own experience and knowledge (Aebersold and Field 1997: 71). The researcher is therefore, left with the impression that the need to study student's schemata for reading has been recognized for at least 20 years. In the same vein, the researcher is also struck with the observation that so few educators have been interested in ascertaining how students perceive learning tasks in school. Therefore, the need to investigate

more on the effect that schemata would have on JSS Two secondary school learners' reading comprehension becomes paramount.

2.15 Theoretical Frame work

The reading process is largely unconscious. People are aware of the outcome of comprehending a text but not how the outcome was achieved. The theory of reading is based on connection made so as to simulate the reading process at a level that intuition does not easily penetrate. This study however, relies strongly on some inevitable theories like: Cognitive theory, Connectionist theory and Meaningful Reception Learning theory.

2.15.1 Cognitive Theory

The top-down model operate on the principle that comprehension of written text starts from the higher level stage of understanding down to the text being read (Olaofe and Masembe, 2006). The schema theory of reading also fits within the cognitively based view of reading. Rumelhart (1980) maintained that the starting point of schema theory is the readers' experience in which schemata are considered to be building blocks on which information processing depends. However, the basis of cognitive view (top-down) on reading is that readers' use their knowledge and experience in order to make predictions/hypothesis about the meaning of text. This, probably may have spurred up scholars of top-down models of reading like: Goodman (1968); Barnett (1988) and Denchant and Smith (1997) to argue that the reading process is more a matter of bringing meaning to than gaining it from the printed page.

2.15.2 Connectionist Theory

The connectionist theory previously known as association theory has a strong link with memory and learning. The approach likens the brain to a computer that would consist of neural networks, Complex clusters of links between information nodes. These links or connections becomes strengthened or weakened through activation or non-activation respectively. Hence comprehension occurs on the basis of associative processes rather than the construction of abstract rules.

The approach does not believe that the learning of rules underlies the construction of linguistic knowledge, but rather this happens through the associative processes of connections made from our prior knowledge (Ellis, 1999a). Advocates of connectionism maintained that the brain creates networks which connect words or phrases to events and objects which occur at the same time. One very important advantage of connectionist model is that they deal explicitly with learning to read (Mccleland, Seidenberg and Patterson, 1996).

It is crystal clear from the review of the connectionist theory, that efficient reading performance can be measured by the amount of association or connections a reader make while reading. This is perhaps the reason why Gerhard (1975) maintained that the connectionist theory in reading can help increase reader's performance in locating the topic sentence, understanding the main idea and recalling the reading text.

2.15.3 Ausubel's Theory of Meaningful Reception Learning

David Ausubel (1968), a cognitive psychologist proposed the notion of meaningful reception learning as a way of helping students link their ideas with new materials or concepts. His theory of learning claims that new concepts to be learned can be incorporated into more

inclusive concepts or ideas. These more inclusive concepts or ideas are *advance organizers*. In any case the advance organizer is designed to provide, what cognitive psychologists call, the *"mental scaffolding to learn new information"*.

According to Ausubel, to learn meaningfully, students must relate new knowledge (concept and propositions) to what they already know". When meaningful learning occurs, the facts are stored in a relational manner. That is, the brain stores them together because they are related to each other. For example, the concept – "Father" could suggests living thing, an adult, a male, head of a family and the likes to an individual who is about to learn or read about the concept. This can further be illustrated using componential analysis as:

"Father"
+ Human
+ Animate
+ Adult
- Female

Fig. 2.1

Now when one fact is recalled, the other facts are also recalled at that moment (or shortly after). In other words, recalling or employing encyclopedic knowledge activates the memory for the new concept. This phenomenon is called the *Spread of activation.* Hence, this is the gist of meaningful learning.

Both meaningful learning and schemata have some things in common. Meaningful learning occurs when learners actively interpret their experience using internal and cognitive operation. Since, the students learn from thinking about what they are doing, the teacher's role becomes one of the stimulating and supporting activities that engage learners in thinking.

The overarching idea in Ausubel's theory is that knowledge is hierarchically organized; that new information is meaningful to the extent that it can be related (attached, anchored) to what is already known. Ausubel maintains that four processes must take place to achieve a meaningful learning in reading. These are:

i. Derivative subsumption: This describes the situation in which the new information that one can learn is an instance or example of a concept that s/he has already learned. For example, you have acquired a basic concept such as "tree". You know that a tree has a trunk, branches, green leaves and may have some kind of fruit, and that, when fully grown is likely to be at least 12 feet tall. Now you learn about a kind of tree that you have never seen before. For instance, a "cashew tree," that conforms to your previous understanding of tree.

ii. Correlative subsumption: Assume that you encounter a new kind of tree that has red leaves rather than green. In order to accommodate this new information, you have to alter or extend your concept of tree to include the possibility of red leaves. In essence, you might say that this is more "valuable" learning than that of derivative subsumption, since it enriches the higher-level concept.

iii. Super-ordinate learning: Imagine that you are well acquainted with scanning, skimming and the likes. But you did not know, until you were taught, that these were all reading skills. In this case, you already knew a lot of skills about the concept (reading), but you did not know the concept itself until it was taught to you.

iv. Combinatorial learning: The first three learning processes all involve new information that "attaches" to a hierarchy at a level that is either below or above previously acquired knowledge. Combinatorial learning is different; it describes a process by which the new

idea is derived from another idea that is neither higher nor lower in the hierarchy, but at the same level (in a different, but related "branch").

However, meaningful learning requires knowledge to be constructed by the learner, not solely transmitted from the teacher to the student. Jonassen, et al (1999), maintained that meaningful learning contains eight primary attributes. These attributes to Jonassen are inter-related and none can be completely extricated from each other and as such they aid comprehension and understanding of written text. There inter-connectedness can further be illustrated below as:

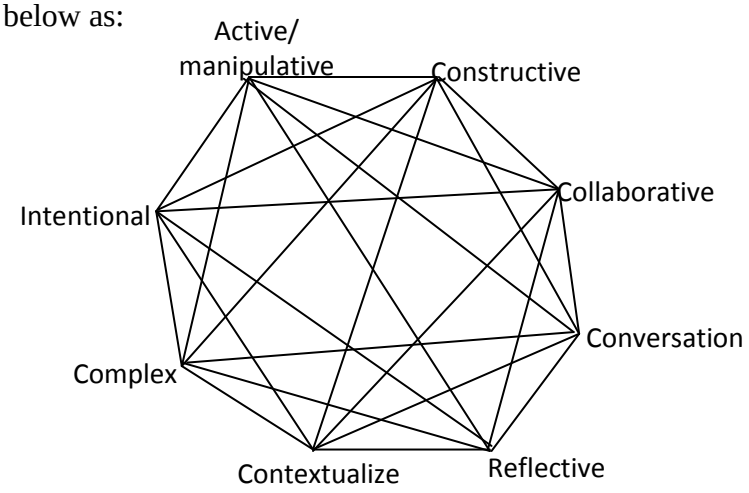


Fig. 2.2

2.15.4 Attributes of Meaningful Learning

Jonassen describes the above attributes as:

i. Active/manipulative: He maintained that we interact with a text, manipulate the objects within it and observe the effects of our active manipulation.

ii. Constructive and reflective. We must reflect on the activity and our observations, and interpret them in order to have a meaningful learning experience.

iii. Intentional: For second language readers to experience meaningful learning, they must be able to articulate their own reading goals and monitor the progress, interpret them and have a meaningful learning experience.

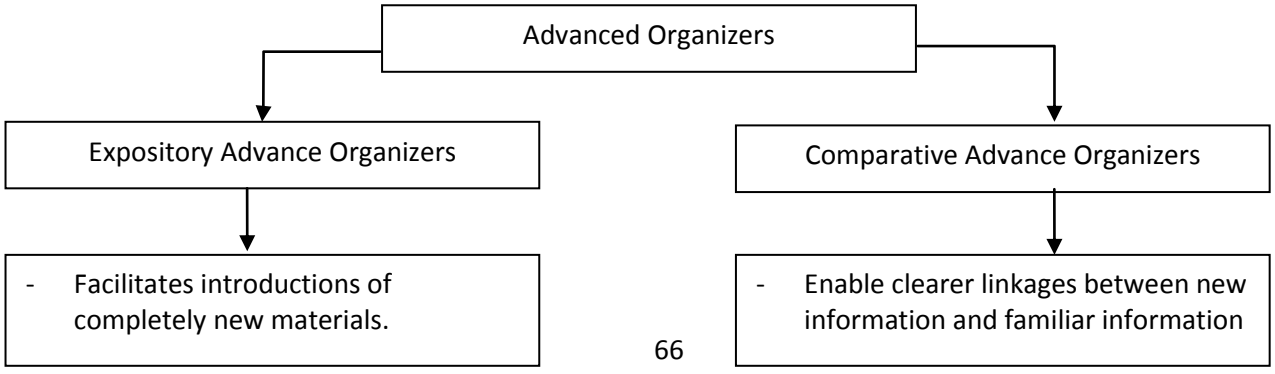
iv. Authentic (complex and contextual): Presenting facts that are stripped from their contextual clues divorces knowledge from reality. Learning is meaningful, better understood and more likely to transfer to new situation when it occurs by engaging with real-life, complex problems.

v. Corporative (collaborative and conversational): Meaningful learning therefore, requires conversations and group experiences. That is, learners' use of their encyclopedic knowledge in making inference.

2.15.5 Advance Organizers

In 1969, Ausubel proposed a structuring strategy called *advance organizers* as means to enhance students' understanding of a text. He found that by producing students with deliberately prepared slightly abstract passages in advance of the main material to be learned, students' learning of subsequent materials was facilitated. This is in line with schema postulation theory of reading which requires prior activation of readers' background knowledge in relation to the set task to be read. Two types of advance organizers are known- Expository Advance Organizers and Comparative Advance Organizers. This is further presented in the table below:

Table 2.1



The theories above hold immense contribution for the present study as they lay emphasis on comprehension facilitated via connecting new knowledge with old knowledge. That is, readers go beyond the text to draw meaning from the real world. Since, to comprehend a text is the major concern of this study the review of these theories becomes paramount. The meaningful reception learning particularly is of paramount as it helps this study to find out if it is possible for second language readers' to improve on their reading comprehension ability via the activation and use of their background knowledge while reading.

The theories stand as foundation on which the present study draws the concept of schema theory. It focuses on the impact of schema theory on secondary school English learners reading for literal, Inferential and critical interpretation comprehension with particular reference to Junior Secondary Two Students. In the same vein, the study hopes to find out whether activating second language learners' prior knowledge could improve Junior Secondary Two students reading comprehension performance. Below is a theoretical framework that buttressed the theory further.

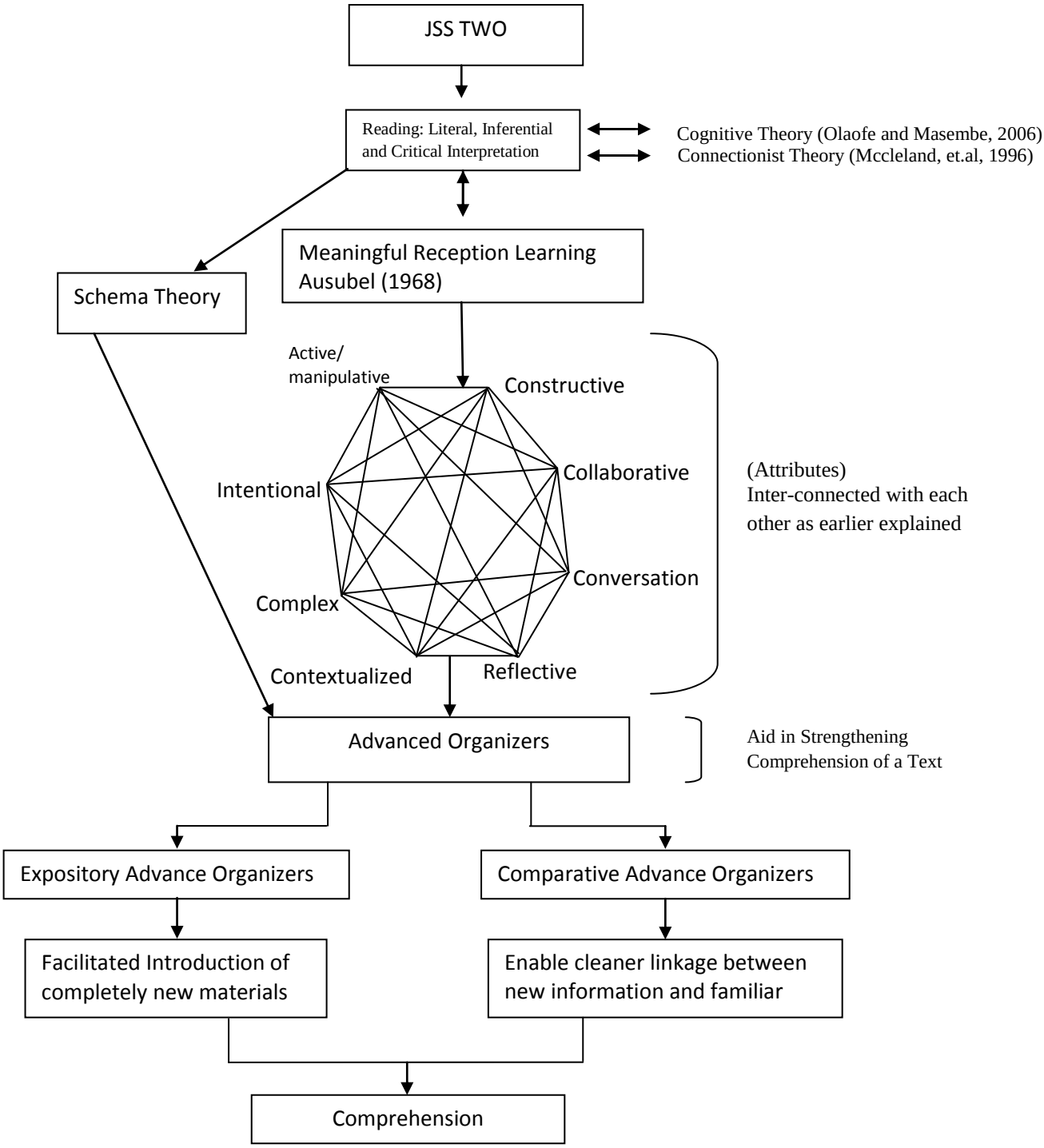


Fig 2.3 Theoretical Framework

The diagram presents the concepts that concern this study. The study focuses on JSS 2 students. The arrows indicate the direct flow of attention. The arrows from "reading" to "comprehension" indicate the purpose/goal of reading activity. Also, the arrows pointing to the theories indicate that they are drawn from reading and that there is a corresponding relationship between reading, cognition and connectionism and it is in the light of these theories that schema for this study is grounded. Schema by the left hand side shows the meaningful reception learning that this study concerns itself with in teaching reading. Proponents of meaningful reception learning believe that schema theory enhance comprehension and that explains why the arrow from the theory (meaningful reception learning) point to advanced organizers (a tool which strengthens comprehension of a text) which further drops to other components down to comprehension. The arrow from "meaningful reception learning" point to the attributes of meaningful reception learning as shown in the interconnectivity. They constitute the subset of meaningful reception. In other words, for meaningful reception to be achieved in any reading exercise, these attributes (Active/manipulative, constructive/reflective, intentional, authentic and corporative/collaborative) must be applied as they would facilitate comprehension. This arrow drives down again to "advanced organizers" which aid understanding via "expository advanced organizers" (facilitated through the introduction of entirely new materials) and "comparative advanced organizers" (This enables clearer linkages between the new information to be learnt and the familiar one). Hence, comprehension is made manifest when both organizers are utilized meaningfully. In other words, comprehension occurs when readers actively engage their schemata in what they read.

2.16 Summary

Chapter two reviewed related literature. It briefly discussed reading comprehension, schema theory and types, characteristics of schema theory, functions, schema modification

processes, schema theory and its potentials for literal, inferential and reading for critical evaluation, schema activation processes, schema theory steps for developing reading comprehension and previous studies on the application of schema theory to second language learners' reading comprehension were discussed. This chapter concluded with the theoretical frame work.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

In this chapter, the study explains the procedure that was employed in carrying out the investigation. This is to give an insight on the population involved, the design used, the actual number of respondents that was used as drawn from the stipulated population, how the instrument used to gather data was developed taking into cognizance their validity, reliability and the procedure that was employed to analyze the data collected.

3.2 Research Design

This study utilized Quasi-experimental design which comprised two groups: control and experimental group. Quasi-experimental research, as defined by Olayiwole (2007), is a design which does not allow for maximum control of extraneous variables. This is because in quasi-experimental research design, the researcher has little or no control over the allocation of the treatment or other factors being studied. Subjects were randomly assigned to one of these groups. In the experimental group, the researcher taught using schema theory technique, while in the control group, the researcher did not teach with schema theory technique. Students that formed the experimental group were subjected to treatment through a rigorous teaching, using schema theory technique. The control group were not given any treatment. After treatment, both experimental and control group were subjected to post-test. The essence was to determine whether using schema theory techniques on the experimental group was more effective or not, in increasing the students' ability in comprehension as against the control group. Thus, Table 3.1 as illustrated below by Owotunde et al (2002), Kolo (2003), Owotunde and Ogodulunwa (2004) and Olaiyiwola (2007) presented a pre-test and post-test experimental design.

Table 3.1 Pre-Test, Post-Test Experimental Group Design

GROUP	PRE-TEST	TREATMENT	POST-TEST
EXPERIMENTAL	√	√	√
CONTROL	√	x	√

Table 3.1 above, clearly showed that the subjects were assigned to both control and experimental groups. "√" showed that the subjects were assigned to groups at random while "X" showed that treatment was not given to the control group.

The choice of this design became inevitable because research has proven that it is the best method for experimental study due to its empirical nature. Also, the design gives room for the possibility of minimizing and controlling the unfavorable condition that may prevail in the research. Below is a diagram showing the research design plan in Fig 3.1

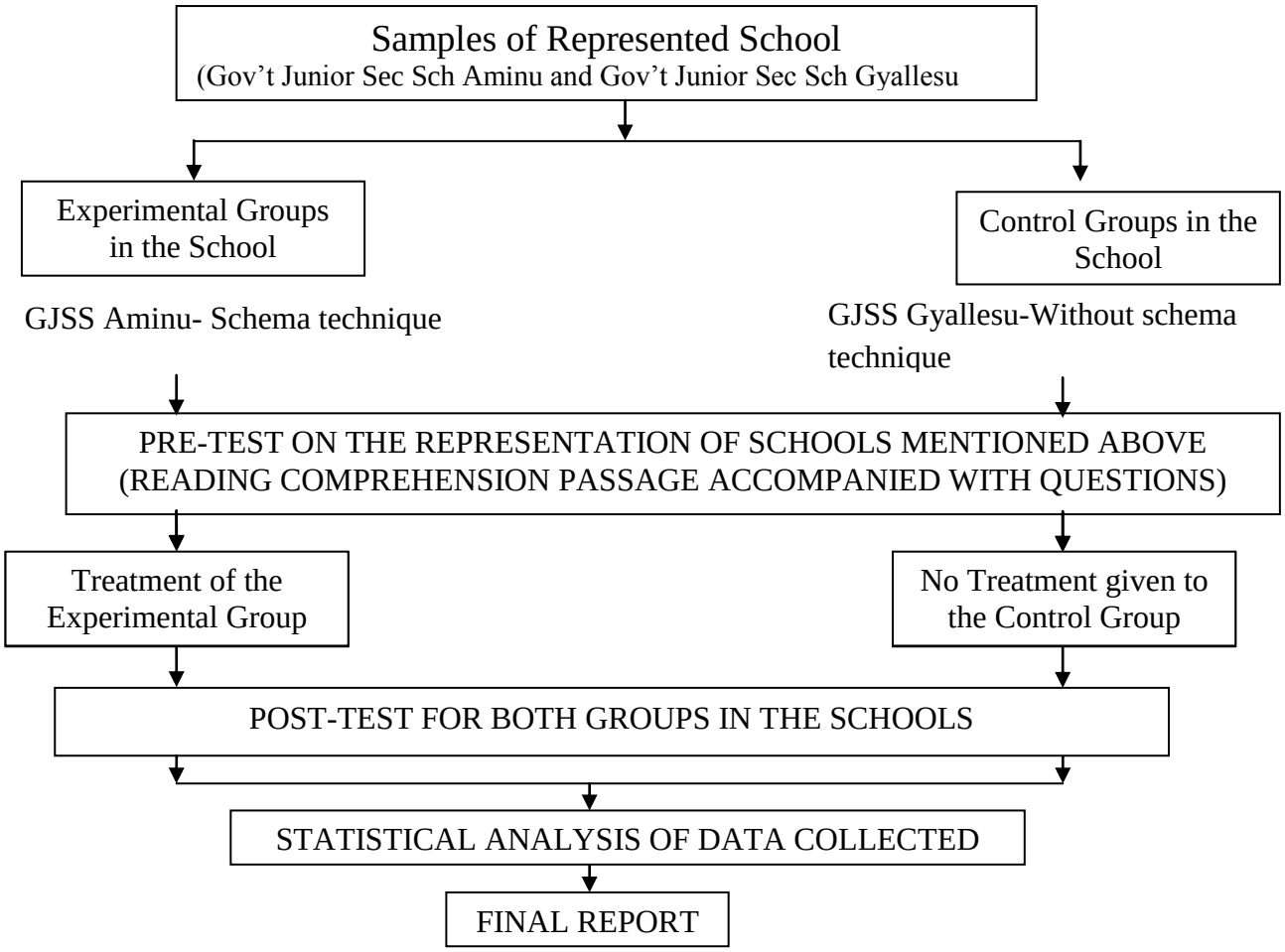


Fig 3.1: Diagrammatic Plan of Research Design

3.3 Population

All the Junior Secondary School students in Zaria Local Government Area of Kaduna State constituted the targeted population for the study. There were thirty two (32) public schools with a total number of 6220 students in Zaria Local Government. The population was taken because of the assumption that the students at this level are more mature and their performance in reading comprehension can be adequately measured. The details of the target population of the schools were presented in Table 3.2.

Table 3.2: Population for the Study

S/No	Names of Schools	Gender	No. of Males	No. of Females
1	GJSS Chindit Barracks	Mixed	335	-
2	GJSS Rimi Doko	Mixed	226	173
3	GJSS Kofar Jatau	Mixed	120	110
4	GJSS Aminu	Mixed	130	140
5	GJSS Tudun Wada	Mixed	191	263
6	GJSS Dogon Bauchi	Female	-	437
7	GJSS Tudun Sebu	Mixed	100	20
8	GJSS Muchia	Mixed	150	132
9	GJSS Zaria	Male	215	-
10	GJSS Magajiyya	Mixed	94	37
11	GJSS Kofar Doka	Mixed	376	199
12	GJSS Fada	Female	-	255
13	GJSS Kinkiba	Mixed	46	06
14	GJSS Abba	Mixed	42	03
15	GJSS Matari	Mixed	20	03
16	GJSS Mangi	Mixed	04	03
17	GJSS Bogari	Mixed	39	11
18	GJSS Chikaji	Mixed	100	110
19	GJSS Nanya	Mixed	24	11
20	GJSS Gyelesu	Mixed	120	160
21	GJSS Awayi	Mixed	39	21
22	GJSS Yakasai	Mixed	40	16
23	GJSS Tudun Juku	Mixed	185	175
24	GJSS Kofar Koyanbana	Mixed	163	58
25	GJSS Dakaci	Mixed	80	72
26	GJSS Kofar Gaya	Female	-	227
27	GGSS (WTC)Kongo, Zaria	Female	-	189
28	GSS Likoro	Mixed	82	36
29	SIASS KarauKarau (A)	Mixed	22	03
30	SIASS KarauKarua (B)	Mixed	110	170
31	GSS Kugu	Mixed	70	07
32	GSS Richipa	Mixed	41	09
	TOTAL		3164	3056
	GRAND TOTAL		6220	

Source: Ministry of Education, Kaduna State, Zaria Inspectorate Division (2015)

3.4 Sample and Sampling Technique

The study utilized two Sampling techniques-purposive and random sampling.

Among the thirty two (32) public schools, Government Junior Secondary School Gyellesu and Government Junior Secondary School Aminu were selected for the study and this was considered adequate because it met the research and statistical requirements of population sampling according to Fowler (1988). Therefore, the sample is a true representative of the present population. There were five hundred and fifty (550) students in both schools. Two hundred and eighty (280) students were in GJSS Gyellesu and two hundred and seventy (270) students were in GJSS, Aminu.

The students that formed the sample population were purposely drawn from JSS 2. This was because the students at this level were expected to have recorded reasonable progress in reading and had acquired adequate skills to carry out the various reading tasks in reading comprehension texts. They were also considered based on their performances in their last examination. This was gotten from their last records in order to reduce chances of being biased or getting inaccurate data.

Random sampling technique was also used to draw the required number of students that formed the population of the study. This was done by writing all the schools in the local government on respective pieces of papers, these were folded and put into a bag while the researcher randomly picked two papers out of the bag. Hence, Government Junior Secondary School, Gyellesu and Government Junior Secondary School, Aminu emerged as the two schools selected out of the thirty two (32) public schools for the study. What informed the choice of the sample is the fact that the chosen public secondary schools, use the same minimum standards and

the entire population cannot be studied as it would have adverse effect on the efficiency of the analysis. In the same vein, the sample was chosen because the study involved teaching and development of teaching materials, observation of students work and activities, marking and analysis of data. Out of the 550 JSS 2 students of both schools (Government Junior Secondary School Gyellesu and Government Junior Secondary School, Aminu), 120 students were further sampled for the study using the same draw method. This was because it has met the research requirements of the population sampling as maintained by Spradly (1979) and Krojchi and Morgan (2006) that, a smaller sample is required when the population is homogenous. 60 students each from the two schools were selected for the study. The reason was to have an equal share of the subject. The table below showed the number of students that were drawn from both schools.

Table 3.3: Number of Students Drawn from Selected Schools

Schools	**Number of Student Per class**			**Number of Students Drawn from each Group**
GJSS Aminu	JSS 2A 89	2B 90	2C 91	60%
GJSS Gyellesu	90	97	93	60%
Total	179	187	184	120%

Table 3.3 revealed that 120 students were drawn from both school. 60 of which formed the experimental group, while the other 60, the control group. JSS 2A, B and C in GJSS, Aminu were the experimental groups while 2A, B and C in GJSS, Gyallesu were the control groups respectively. This is further explained below in Table 3.4

Table 3.4: Number of Students in the Experimental and Control Groups

Class	GJSS, Aminu Experimental Group	GJSS, Gyallesu Control Group
2A	20	20
2B	20	20
2C	20	20
Total	60	60

From table 3.4 it would be seen that 20 students were drawn from each class and group. 60 of which formed the experimental group (GJSS, Aminu), while the other 60, the control group (GJSS, Gyallesu).

3.6 Research Instrument

In order to determine the effect of schema theory on second language learners' performance in reading comprehension, the instrument used for this study was a reading comprehension test. The researcher used a reading comprehension test in order to know the students' comprehension ability before and after given the treatments. The researcher selected three comprehension passages with comprehension questions that displayed the same difficulty level from the students' English Textbooks. The passages were selected based on the following criteria:

i. How interesting the passages were
ii. The educative and informative nature of the content of the passages
iii. Suitability to JSS students' age, linguistic level, readability and socio-cultural disposition

The questions that followed the comprehension passages were those that evoked deep thought provoking processes that do not deserve "Yes" or "No" answers only. These were reading

passages that stimulate different schematic types. Duration of 40 minutes was allocated for each contact with the students.

3.6 Pilot Test

A pilot test was conducted in Government Junior Secondary School, Chikaji. The aim was to determine the validity and reliability of the test instrument to be used in the study proper. A pre-test post-test experimental design was used. 10 students were randomly selected from JSS 2. Two passages of similar content and difficulty level were the instruments used to gather data. Two teachers were randomly selected for the purpose of teaching the experimental and control groups.

A pre-test was administered to the sampled population using one of the passages. A teacher taught the students' reading comprehension for 45 minutes after which 10 comprehension questions were given to them to answer. After the pre-test, students were randomly selected into experimental and control groups. Before treatment, students for the experimental group were adequately taught for 45 minutes on how to activate and use their schemata when reading and answering comprehension questions. The control groups were not given any treatment. Marks awarded for the experimental and control groups during the post-test were converted to hundred percent (%). Subjects in the experimental group performed better than those in the control group. This suggested that treatment was effective. Generally, the result showed that the students performed better in the post-test than they did in the pre-test.

3.7 Validity of Instrument

The instrument which was designed by the researcher was subjected to face validity by statistician and language experts who were seasoned in language teaching and it revealed

unambiguous statement, logicality, clarity of thoughts, and use of simple language that suits the level of learners.

3.8 Reliability of Instrument

In determining the reliability estimates of this study, a test-re-test method was employed. The Kuder-Richardson method was used to calculate the reliability estimate. It is known as KR 21 (Kuder-Richardson formula). The method was used because it is the index use to determine internal consistency of items. The reliability estimate of the pilot study yielded a reliability coefficient of 0.92. This means that the instrument was considered reliable and would constantly measure what it was meant to measure (Bello and Ajayi, 2000).

3.9 Data Collection Procedures

The method of data collection involves administering of reading comprehension test to the sampled students. In administering the instrument to gather data, procedural steps were taken.

Step One: Pre-Test

A passage from the three passages (literal, inferential and critical evaluation passages) selected for the study was taught by the sampled teachers in the two schools. Teachers used the techniques they normally employ to teach reading comprehension (traditional method) after which comprehension questions were administered to test how well students understood the passage after using the traditional method to teach. Marks awarded were properly filed. The exercise took 2 weeks of teaching and 40 minutes for each contact. The researcher paid a close attention to the method(s) employed by the teachers in delivering the lesson. The pre-test was conducted so as to determine the students' preliminary reading ability before conducting

treatment and to determine at the end of the investigation if there were significant difference between pre-test and post-test scores as a result of the treatment made on the experimental group.

Step Two: Treatment

After the pre-test, students were divided into experimental and control group using random sampling technique. Three reading comprehension passages which comprise literal, inferential and critical evaluation passages were used for teaching. This is because the study centered on these three levels of reading comprehension. For the experimental group, the researcher personally taught the students using schema technique. Six weeks were used for teaching students reading comprehension. See below other sub-steps that were used in treating the experimental group.

Step Three: Schema Theory

Students were taught by the researcher how to activate and use their prior knowledge (linguistic, content and formal) so as to aid them get a general idea of what a passage is all about before and after reading. These were achieved via schema activation strategies and steps.

a) Making of prediction. This was done by: asking the students to read the title of the article (Do they know anything about the subject?), have the students read the first few paragraphs, which generally introduced the topics discussed in the text (Can they determine the general themes of the text?), Then ask them to read the first sentence of each paragraph, usually the topic sentence, which gave the main idea of the paragraph (Can they determine the major points of the article?), Read the last paragraph, which often revealed the conclusion of the author. Have the students discussed how the author organized the information to present his point of view.

b) Discussion. This was done by dividing the class into a manageable size, after which the groups were made to produce a draft of the outcome of their discussion. The essence was to stimulate and make them active in the reading exercise. Questions about the topic were asked to best direct the discussion.

c) Brainstorming. This was done by first giving the class a particular key word or key concept, or title of the text after which students were encouraged to write any words, ideas or phrases they knew about the giving topic.

d) K-W-L Plus. This was done by first getting the students to list everything they knew about the passage after which they were made to think about what they wanted to know about the passage and at the end, they were made to read the passage and summarized what they had learnt. Also, teachers could show the students some pictures about the text that they would read after which the students then discussed what they discovered with a partner and discussed it as a class.

e) Skimming. It is a rapid glancing of the text before the actual reading properly. This was done by first getting the students preview the passage before reading. This can be achieved by looking at the number of paragraphs in the passage and title of the passage (if stated).

f) Real-Life Experience. This was done by first allowing the students to see, touch, use and experience real objects or situations after which students were provided with a real life experience that was connected with the reading passage.

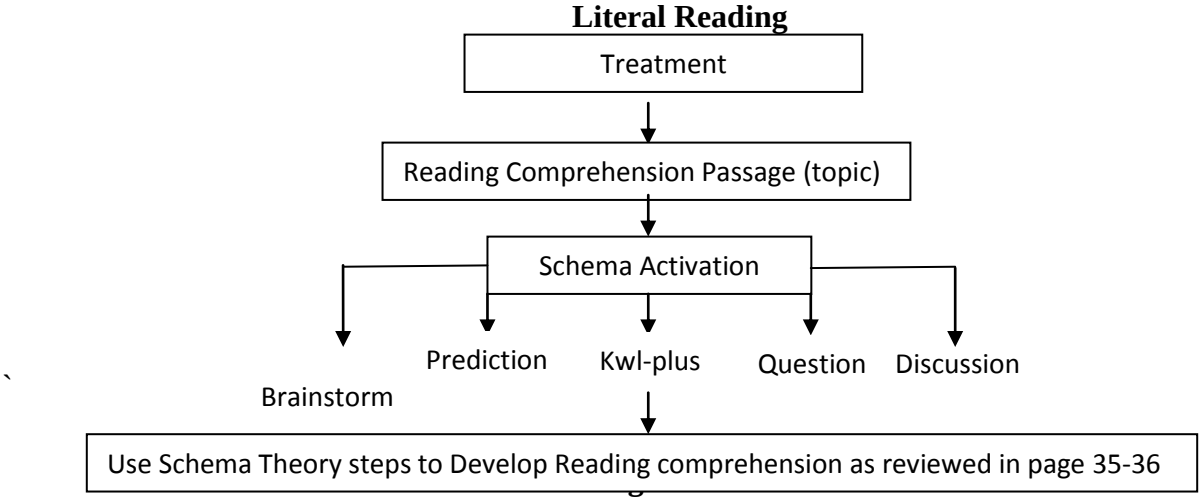
g) Vocabulary Teaching in Context. This was done by looking at the unknown words and decided the parts of speech, looked at the sentence containing the unknown words, tried to guess the meaning of the words, checked whether your guesses were correct or not.

h) Question. This was done by first allowing the reader to find answers to the questions posed in the text or the student may be made to generate the questions themselves before the actual reading exercise.

i) The Experience-Text-Relationship (ETR). This was done by first, allowing the students express their own experience about the knowledge of the topic prior to reading. After the students have adequately shared their knowledge, the text became the focus of the class. After this segment, teacher asked the students to read short sections of the text and then questions about the content. Finally, the teacher aids the students to draw relationships between personal experiences and the material discussed in the text.

The students were asked provocative questions that spurred the students to discuss the text even before reading it. Thereafter, the students were given comprehension questions to answer. The questions required inferential, critical and literal ability to draw meaning.

Figure No 3 below showed how the experimental group was treated using schema theory for each reading comprehension level.



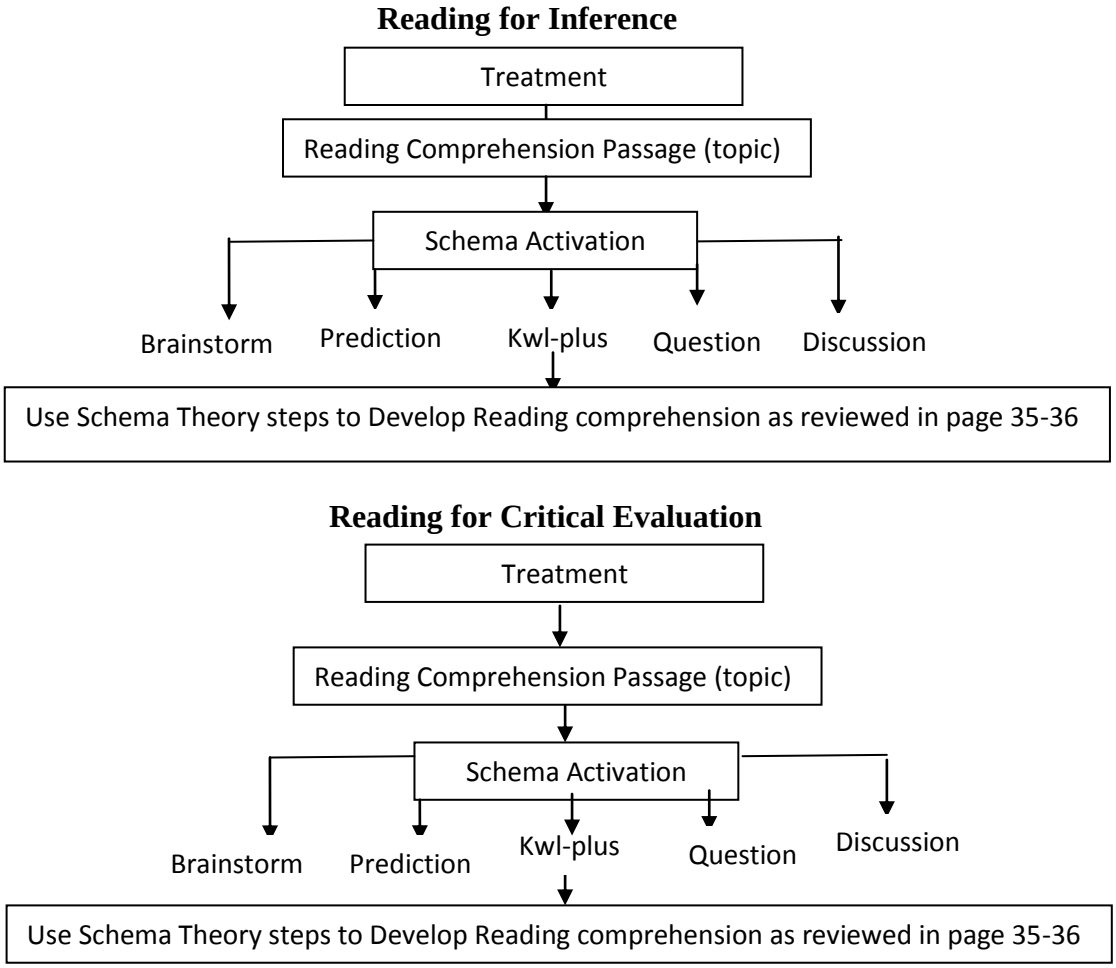


Fig 3.2. Stages of Treatment Plan

Steps Four: Control Group

Teachers in this group were left at liberty to teach reading comprehension using the method they were familiar with. Though, the number of weeks, time allocated per lesson and passages used for the experimental group were also used for these groups. This took place concurrently to avoid situation where teachers may have the opportunity to see what the other is doing.

Step Four: Post-Test

At this stage, comprehension test was administered to the sampled students in both experimental and control group. Both literal (HIV/AIDS), inferential (Africa) and critical evaluation (Agriculture) questions were asked to test students' comprehension ability. Scores were awarded based on the performance of students. They were graded on the scale of 0-19 (low), 20-29 (middle), and 30-39 (high). In the same vein, the mean scores of students' performance were presented and analyzed.

Table 3.5 Research Program Plan

Duration (weeks)	Experiment	School	Pre-test	Treatment	Post-test
Six (6) (Three contacts per week)	Schema theory	Government Junior Sec Sch, Aminu JSS 2	√	√	√
	Control				
Six (6) (three contacts per week)	Teachers'self method	Government Junior Sec Sch, Gyallesu JSS 2	√	X	√

(Where "√" means there is while "x" means there is not).

3.10 Data Analytical Procedure

Vital steps were taken in analyzing the data collected. Scores obtained from the reading comprehension test exercise were properly analyzed across the two schools and presented in tables. Students' performance in the experimental and control groups were graded as 0-19 as low, 20-29 as middle and 30-39 as high in the schools. The mean scores of the groups were also determined to ascertain the level of impact of schema theory on comprehension ability of the students. Performance of students in both pre-test and post-test were placed side by side to find out if the treatment would influence the students' performance in reading comprehension or not.

T-test technique was used to test the hypothesis of the study. The reason for choosing the T-test statistical technique was to confirm whether the pre-test and post-test difference in the experimental group was significant. The hypothesis was measured at 0.05 level of confidence.

3.11 Summary

Chapter three discussed the type of research design used for the study. The experimental research design was adopted. The total population for the study was 6220 out of which 120 was taken using random sampling procedure. It also discussed the instrument for data collection, pilot test, validity of the research instrument used for the study, reliability of the instrument, data collection procedure and data analytical procedure.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND DISCUSSION

4.0 Introduction

This chapter focuses on the analysis of data collected from the reading comprehension test administered to students. The study hope that after the analysis of data, the result would reveal whether schema theory enhances junior secondary school better performance in reading comprehension texts or not. Also, the outcome would compel the study to accept or reject the hypotheses presumed.

4.1 Presentation and Analysis of Results

The results are presented in the following steps: First, analysis of data from the reading tests. This dealt with the scores obtained by the students in the experimental and control groups. Secondly, the research hypotheses is presented and analyzed at 0.05 alpha level of significance using T-Test statistical tool.

The data collected on the reading performance of students after post test are analyzed based on the research questions raised in chapter one of this work. The actual answers of the reading comprehension test in the experimental and control group are presented and analyzed.

Research Question 1: What is the effect of schema theory on junior secondary school JSS two English learners' reading for literal comprehension?

The tables below present the grading of students performance and the mean scores in the experimental and control groups in the two schools.

Table 4.1: Performance of Students Based on Standard Grading-Literal Comprehension

Schools	Groups	No	Range	F (%)	Category
GJSS, Aminu	Experimental	60	00-19	Nil	Low
			20-29	18	Middle
			30-39	42	High
GJSS, Gyallesu	Control	60	00-19	07	Low
			20-29	46	Middle
			30-39	07	High

As indicated in Table 4.1, students in the experimental group performed better in reading for literal comprehension than those in the control group. 42% scored high grade in the experimental group while only 07% scored high grade in the control. On the other hand, Non scored low grade in the experimental group while 07% scored low grade in the control group respectively. This implies that there is effect as a result of treatment

Table 4.1:1 presents the mean score of students' performance in the experimental and control group

Table 4.1.1: **Mean Scores of Experimental and Control Group**

Schools	Groups	N	Mean	SD
GJSS, Aminu	Experimental	60	30.000	4.69403
GJSS, Gyellesu	Control	60	21.0833	5.45332
	Total	120		

As indicated in Table 4.1, students in the experimental group performed better (30.000) than those in the control group (21.0833). This is because the mean scores for the experimental

group are higher than the mean scores for the control group. To attest to the above, the actual responses of students are clearly presented in table 4.1:3 below.

Table 4.1:2. Qualitative Analysis of Actual Performance of Students Taught Literal Comprehension

Control Group			**Pre-Test**	**Post-Test**
Question	**Question Type**	**Category**	**Response**	**Response**
Where does the HIV virus stay in the human body?		Low	In the chest (x)	In the mouth (x)
Answer	Literal	Middle	In the body fluid(√)	In the body fluid( )
In the body fluid		High	In the mouth (x)	None of the above(x)
Experimental Group				
Where does the HIV virus stay in the human Body?	Literal	Low Middle High	In the body fluid(√) In the mouth(√) In the body fluid(√)	In the body fluid (√) In the body fluid (√) In the body fluid(√)
Answer In the body fluid				

Table 4.1:2 displayed clearly, that as a result of treatment, students performed better. For instance, there was a remarkable improvement in answering literal questions as only a student (middle) got the answer correct in the control group while students in the low, middle and high got the answer correctly in the experimental group. This means that the treatment was effective which suggest the fact that schema theory improved students' literal comprehension than those taught literal comprehension without the technique.

Research Question 2: What is the effect of schema theory on junior secondary school JSS two English learners' reading for inferential comprehension?

Tables 4.2 presented the outcome of students' performance in the experimental and control group with the aim of showing if there is effect of schema theory technique on the inferential comprehension ability of students in the experimental side by side the control group.

Table 4.2: Performance of Students Based on Standard Grading Inferential Comprehension

Schools	Groups	No	Range	F (%)	Category
GJSS, Aminu	Experimental	60	00-19	12	Low
			20-29	31	Middle
			30-39	17	High
GJSS, Gyallesu	Control	60	00-19	50	Low
			20-29	10	Middle
			30-39	Nil	High

From the table above, it is obvious that students in the experimental group performed better than those in the control group; 17% scored high grade in the experimental group while not a single student scored the same grade in the control group. On the other hand, 12% scored low marks in the experimental group while 50% scored low in the control group respectively.

Table 4.2.1: Mean Scores of Experimental and Control Group

Schools	Groups	N	Mean	SD
GJSS, Aminu	Experimental	60	23.4167	5.78511
GJSS, Gyallesu	Control	60	12.4167	5.85790
	Total	120		

It is lucid from Table 4.2 that there is no doubt that students in the experimental group performed better (23.4167) than those in the control group (12.4167) when they were taught

inferential reading comprehension using schema theory. This is because the mean scores of both groups differ remarkable. This implies that there is a positive effect of schema theory technique on second language JSS two learners' reading for inferential comprehension.

Table 4.2:2. Qualitative Analysis of Actual Performance of Students Taught Inferential Comprehension

Control Group			**Pre-Test**	**Post-Test**
Question	**Question Type**	**Category**	**Response**	**Response**
By Africa is a Well-defined continent, the writer is suggesting **Answer** Africa's boundaries are clearly marked	**Inferential**	**Low**	Africa can be defined(x)	Africa boundary are clearly marked(√)
		Middle	None of the above (x)	Africa's boundaries are clearly marked(√)
		High	Africa is an ill-structure Continent(x)	Africa can be defined (x)
Experimental Group By Africa is a Well-defined continent, **Answer** Africa's boundaries are clearly marked	**Inferential**	**Low**	Africa can be defined(x)	Africa boundaries are clearly marked(√)
		Middle	Africa is an ill-structured continent(x)	Africa's boundaries are clearly marked(√)
		High	Africa's boundaries are clearly marked(√)	Africa's boundaries are clearly marked(√)

It is quite obvious that Table 4.2:2 has unambiguously shown that students' responses at post test in the experimental group performed better than those of the control group. The low, middle and high in the experimental group got the answer correctly while only the middle and low got the answer in the control group. This means that treatment was effective. As such, schema

theory enhances JSS Two second language students' reading for inferential comprehension of a text.

Research Question 3: What is the effect of schema theory on junior secondary school JSS two English learners' reading for critical evaluation comprehension?

Tables 4.3 present the outcome of students' performance in the experimental and control group with the aim of showing if there is effect of schema theory technique on the critical evaluation comprehension ability of students in the experimental side by side the control group.

Table 4.3: Performance of Students Based on Standard Grading-Critical Interpretation Comprehension

Schools	Groups	No	Range	F (%)	Category
GJSS, Aminu	Experimental	60	00-19	21	Low
			20-29	37	Middle
			30-39	02	High
GJSS, Gyallesu	Control	60	00-19	47	Low
			20-29	13	Middle
			30-39	00	High

It is obvious from the table that students in the experimental group performed better than those in the control group; 02% scored high grade in the experimental group while not a single students scored the same grade in the control group. On the other hand, 47% scored low in the control group while 21% scored low in the experimental group respectively. This implies that there is effect as a result of treatment.

Table 4.3.1 Mean Scores of Experimental and Control Group

Schools	Groups	N	Mean	SD
GJSS, Aminu	Experimental	60	20.3333	5.24216
GJSS, Gyallesu	Control	60	11.6500	6.90081
	Total	120		

It is lucid from Table 4.3. that there is no doubt that students in the experimental group performed better (20.3333) than those in the control group (11.6500) when they were taught reading for critical evaluation using schema theory techniques. This is because the mean scores of both groups differ remarkable. To buttress, this further, sample of actual responses of students are presented and analyzed in Table 4.1:2 below:

Table 4.3:2. Qualitative Analysis of Actual Performance of Students Taught-Critical Interpretation Comprehension

Control Group			Pre-Test	Post-Test
Question	**Question Type**	**Category**	**Response**	**Response**
Which one of the following is not true about agriculture in the passage?		**Low**	Shifting cultivation did farmland(x)	Agriculture created wealth(x)
		Middle	Agriculture created wealth(x)	Mixed cropping was practiced as a system of agriculture (√)
	Critical Interpretation			
		High	Agriculture did encourage urbanization	Agriculture created wealth (x)
Answer Mixed cropping was Practiced as a System of agriculture				
Experimental Group		**Low**	Agriculture created wealth (x)	Mixed cropping was of practiced as a system agriculture(√)
		Middle	Agriculture did encourage urbanization	Mixed cropping was practiced as a system of agriculture (√)
		High	Mixed cropping was practiced as a system of agriculture(√)	Mixed cropping was practiced as a system of agriculture(√)
	Critical Interpretation			
Answer Mixed cropping was practiced as system of agriculture				

It is obvious from Table 4.3:2 above, that student responses at post test in the experimental group performed better than those of the control group. For instance, there was a remarkable improvement in answering reading for critical interpretation comprehension question as a result of treatment in the experimental group, as against the control group, Students in the low, middle and high got the answer correctly in the control group. This implies that, treatment was effective which suggest that schema theory technique improved JSS Two Second language students reading for critical interpretation comprehension than those taught without the technique.

4.4 Analysis of Hypotheses

Three null hypotheses were raised for this study in line with the objectives stated for this study. The null hypotheses were tested using t-test statistics at 0.05 level of significant. In order to provide solution to the hypotheses raised for this study, the following analyses were made:

$H0_1$: *Schema theory has no significant effects on junior secondary school JSS two English learners' reading for literal comprehension.*

The null hypothesis is intended to show if the performance of the students in the experimental group (taught reading comprehension using schema theory technique) would differ from that of the control group.

Below is table 4.6 showing the summary of students' performance in the two schools using T-Test statistical tool.

Table 4.6: T-Test Analysis of the Performance of Experimental and Control Group

Variables	N	Mean	S.D	t-calculated	Df	P	t-critical value
Experimental	60	30.000	4.69403	9.599	118	0.000	1.98
Control	60	21.0833	5.45332				
Total	120						

Table 4.6 result above shows that the t-calculated value (9.599) at 118 degree is greater than critical value (1.98) at 0.05 level of significance. The observed level of significance P value (0.000) is less than 0.05 level of significance. This means that schema theory has a significant effect on second language JSS two learners reading for literal comprehension. Therefore, since the calculated value is greater than the critical value, the null hypothesis is rejected.

HO_2 : *Schema theory has no significant effects on junior secondary school JSS two English learners' reading for inferential comprehension.*

This null hypothesis is intended to show if the performance of students in the experimental group (taught reading comprehension using schema theory) would differ from the control group.

Table 4.6. shows the analysis of the calculated and critical values in order to determine if the hypothesis is to be accepted or rejected.

Table 4.6.1 T-Test Analysis of the Performance of Experimental and Control Group

Variables	N	Mean	S.D	t-calculated	Df	P	t-critical value
Experimental	60	23.4167	5.78511	118	118	0.000	1.98
Control	60	12.4167	5.85790				
Total	120						

Table 4.6 result above shows that the t-calculated value (118) at 118 degree is greater than critical value (1.98) and at 0.05 the observed level of significance P (0.000) is less than 0.05. This means that schema theory has a significant effect on second language JSS two learners reading for inferential comprehension. As such, since the calculated value is greater than the critical value, the null hypothesis is rejected.

HO_3 : *Schema theory has no significant effects on junior secondary school JSS two English learners' reading for critical evaluation comprehension*

This null hypothesis is intended to show if the performance of students in the experimental group (taught reading comprehension using schema theory) would differ from the control group.

Table 4.7. shows the analysis of the calculated and critical values in order to determine if the hypothesis is to be accepted or rejected.

Table 4.7.1 T-Test Analysis of the Performance of Experimental and Control Group

Variables	N	Mean	S.D	t-calculated	Df	P	t-critical value
Experimental	60	20.3333	5.24216	7.761	118	0.000	1.98
Control	60	11.6500	6.90081				
Total	120						

Table 4.7 results shows that the t-calculated value (7.761) at 84 degree is greater than critical value (1.98) and at 0.05. The observed level of significance P (0.000) is less than 0.05. This means that schema theory has a significance effect on second language JSS two learners reading for critical evaluation comprehension. As such, since the calculated value is greater than the critical value, the null hypothesis is rejected.

4.5 Overall Findings

The overall findings from the data analysis are:

i. JSS2 students taught literal comprehension using schema theory technique (Experimental Group) performed better than those (Control Group) taught without schema technique. Evidence from the literal comprehension questions and answers clearly revealed that student I when taught literal comprehension using schema theory was able to know that HIV virus stays in the body fluid of humans. Student II was equally able to extract the meaning of epidemic from the linguistic output of the text as widespread. Hence, schema theory has proven to be a better technique for enhancing students better performance in reading for literal comprehension.

ii. JSS2 students taught inferential comprehension using schema theory technique (Experimental Group) performed better than those (Control Group) taught without schema

technique. This was evidently proved via the performance of the students after exhibiting the sub-components of inferential comprehension. Student I for instance, was able to infer the possible title of the inferential comprehension passage as " The continent of Africa" and student II displayed high level of understanding of the passage that "Continental communication could be slow and steady if development is to be achieved". This has further proved the fact that students under the experimental group performed better than the students under the control group.

iii. JSS2 students taught reading for critical interpretation comprehension using schema theory technique (Experimental Group) performed better than those (Control Group) taught without schema technique. Evidence from the critical interpretation and evaluation comprehension questions clearly revealed the student's performance in the area. Student I under the experimental group was able to evaluate the validity of the authors ideas as "agriculture absorbed a large number of people and many other economic activities revolved round it". Student II infers that "the writer was successful because it was in the paragraph that he highlighted some of the features of shifting cultivation". Hence, schema theory technique as used by the students under the experimental group has proven it worth in enhancing students' performance in reading for critical interpretation and evaluation comprehension.

iv. Schema theory technique has proven to have enormous effects on JSS2 students' performance in reading comprehension.

4.6 Discussion of Research Findings

From the first finding of this study, there is no doubt that when students were taught literal comprehension using schema theory technique; that is, employing schema activation strategies like discussion, brainstorming, questions, experience-text-relationship, and so on, they performed

better than those that were not taught literal comprehension with schema theory techniques in the control group. An extract from a transcribed lesson taught further revealed that the students' brainstormed and came up with other related ideas about the topic (HIV) like: infection, deadly disease, virus, transmission, and that it attack the human body.(See Appendix IV for further insight) This follows that schema theory is a good reading technique. Proponents of schema theory technique claim that schema theory enhances comprehension of texts. Similarly, literal comprehension is at its best when a reader puts its schema into use while reading.

Also, the second finding of this study, via the qualitative use of schema theory, revealed that students' taught inferential comprehension using schema theory technique (Experimental Group) performed better than those that used the normal methods (without schema theory techniques) that teachers uses while teaching (Control Group). From the transcribed lesson taught, students were able to apply the schema theoretical steps for developing reading comprehension when they were reading. For instance, students made a text-to-world connection with the passage entitled "Africa". Student I said "it is related to a text I once read that talks about Asia and Nigeria. This study has proved that once teachers can manipulate the schema theory technique, students will comprehend texts no matter how difficult the texts are. This further suggests that no matter how complex a text is, students proper application of schema theory tenets will be a sure way to understanding the text. This is in line with Olaofe's (1995) claims that reading for inference requires a critical reading rather than a general cursory exercise. Critical, in this context, requires application of encyclopedic knowledge to a reading exercise.

The third finding showed that students taught reading for critical evaluation using schema theory technique performed better than those taught without the theory (Control Group). An extract from the transcribed lesson further pointed to the fact that the theory (schema theory) is a good technique for developing students reading comprehension performance. Student I made a

text-to-self connection of the concept “Agriculture” and came up with: Agriculture deals with production of food to meet the demands of the people; it has helped in boosting the economic power of a country etc. This study has proved that once teachers can manipulate the schema theory technique, students will comprehend texts no matter how difficult the texts are. This was illustrated in the previous chapter using the schema activation technique and schema steps for developing reading comprehension. This is in line with the arguments of Anderson (1984) and Grabe (2005) that reading comprehension is best achieved when one’s knowledge of the world is activated and that no matter how complex a text is, application of background knowledge to the text will reduce the difficulty level of the text. This was illustrated via schema activation and schema steps for developing reading comprehension in chapter two. Anderson (1997) and Grabe (2002) advocated that students should be exposed to reading texts of varying subject matter but it should be accompanied with the application of schema tenets. It, therefore, means that reading varieties of materials as suggested by Houlby (2011), Ganjang (1997) and Oyetunde (1997) may help students to develop variety of vocabulary (Linguistic schema) that can help improve their reading comprehension. This is also in line with Aliyu’s (2006) claims that in critical evaluative reading, students’ attention is paid to the force of language that has been created through the words, sentence types and idiomatic expressions.

The findings of this study showed that students taught reading comprehension (literal, inferential and critical) using schema theory technique performed better than those taught reading comprehension (literal, inferential and critical) without the technique. Watkin (2011) maintains that pupils tend to understand words via context and help make out meaning of that word or group of words by drawing a similar situation.

However, empirical studies showed that application of schema theory in teaching reading has revealed that comprehension relies significantly on readers’ successful activation of their

background knowledge (schemata). Hence, schema theory plays an important role in reading comprehension. It is theorized that learners can comprehend a text better when they bring to mind a schema that gives a good account of the events described in the message. This study is of the view that teacher is the centre of failure or success of the reading process. This is evident via the results of both the experimental and control groups in Tables 4.1, 4.2 and 4.3. If Anderson (1977) is correct that changes in schemata occur when new information cannot be assimilated into existing schemata, poor comprehenders may learn that reading necessitates efforts to comprehend text when teachers begin to emphasize comprehension as central to reading not just an outcome of reading.

4.7 Summary

This chapter analyzed and discussed research questions, null hypotheses and reading comprehension raised for the study. It was discovered that schema theory was effective for improving students' reading comprehension. There was a clear difference in the performances of the experimental groups and the control group. The activation of the students' schemata and the use of schema steps in developing comprehension culminates in better mastery and understanding of the passages.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

In this chapter, the summary of the investigation on the effects of schema theory on junior secondary school English learners' performance in reading comprehension in Zaria educational zone are presented along with the major findings. The chapter also, presents the recommendations of the study and suggestions for further studies.

5.1 Summary

The study focuses on "effects of schema theory on junior secondary school English learners' performance in reading comprehension in Zaria educational zone". It seeks to find out whether schema theory technique could improve the reading comprehension of second language learners reading comprehension of texts. Based on this, three research questions were raised to determine the effect of schema theory on the performance of second language learners' reading comprehension. These are: What is the effect of schema theory on second language JSS two learners' reading for literal comprehension? What is the effect of schema theory on second language JSS two learners' reading for inferential comprehension? What is the effect of schema theory on second language JSS two learners' reading for critical evaluation comprehension?

One research instrument was used to gather data-Reading comprehension test. Teachers for the experimental were rigorously trained on the techniques for teaching reading via schema theory technique. Afterwards, students were taught reading comprehension using same passages for the experimental and control groups in the two schools. A reading comprehension test was

administered to students and the results were collected. T-Test statistical tool was employed to determine the mean score of students and to measure the level of significant at 95%.

5.2 Conclusions

From the investigation, below are the general findings:

i. Students in the experimental groups performed better than those of the control groups.
ii. Students taught reading for literal comprehension using schema theory postulations performed better than those whom were taught using the traditional method.
iii. Students taught reading for inferential comprehension using schema theory postulations performed better than those whom were taught using the traditional method.
iv. Students taught reading for critical evaluation comprehension using schema theory postulations performed better than those whom were taught using the traditional method.
v. The outcome of the result indicated that schema theory is a better technique for teaching reading comprehension.

Based on this empirical investigation, it is difficult to doubt that schema theory technique does not facilitate comprehension in secondary school. As such, teachers need to be properly trained on teaching reading comprehension via schema theory technique. They have to employ the tact (schema activation and schema procedural steps for developing comprehension) necessary for helping students understand a text. Teachers must be sensitive to potential comprehension difficulties which ESL readers may encounter with a text due to lack of familiarity with the culture-specific content the text presumes. This study will remind them to be more sensitive to their students' reading problems regarding the lack of cultural background knowledge. These issues take special relevance when teachers confront students with apparently good grasp of grammar but still showing difficulty in understanding of a foreign text. Language teachers should

have a sound knowledge of target culture and preferably have the experience of living in the context of target culture. Therefore, the ability of students to comprehend a text does not lie on how many books surround them but basically on how teachers manipulate the texts available that students can comprehend a given text.

5.3 Recommendations

Based on the findings that students taught reading comprehension (literal, inferential and critical interpretation comprehension) using schema theory technique performed better than those who were taught using the traditional method (without technique), the study recommends that schema theory technique should be employed when teaching reading comprehension. This is because observation and interactions with text revealed that students tend to have a firm grip and understanding of a text when they apply their background knowledge (linguistic, content and formal) to what so ever text they are confronted with (Carrel and Eisthrhold, 1988 and Peng, 2002). As such, teachers' task is to teach learners or readers how to read and apply their schema while reading. In doing this, the teacher should follow the following schema procedures for developing reading comprehension:

i. Decide on the reading comprehension passage (topic)
ii. Engage the students in thorough brainstorming around the topic
iii. Write down related lexical items based on the brainstorm had
iv. Discuss issues that are related to the reading comprehension passage
v. Allow the students to visualize round related issues discussed-drawing inferences or mental picture of the text which is about to be read
vi. Reading of the comprehension passage silently by the students

vii. Carry out comprehension monitoring: This can be done by checking or noticing what you are doing when you are reading and also being aware of how you do it (also called *meta-cognition* or thinking about how you read). From the transcribed lesson extract of Literal comprehension (HIV), the students brainstormed and came up with relevant points like *disease, Human Immune Virus* etc.

viii. Make a text-to-self connection of what you are reading by drawing upon your personal life experience. Going by the lesson taught on reading for critical interpretation and evaluation, the students connected the topic (Agriculture) to their personal life experience about the concept. Students A said *"there is time to go into farming".* Student B said *"Agriculture boosts the economic power of a country"* etc.

ix. Make a text-to-text connection by relating text A (Previous text studied) with text B (Present reading comprehension text). From the extract of a transcribed lesson, students A response was *"I was once taught mixed farming, shifting cultivation etc in primary school".*

x. Make a text-to-world connection by relating ideas or events you are reading with the world (content schema). An extract from the topic "Agriculture" revealed that students were able to make a text-to-world connection. Student A said *"it has a close bearing with the present administration in Nigeria which encourages agriculture as a means of tackling unemployment in Nigeria etc.*

xi. Recall: Think about important points you read about and connect to other experience to increase your comprehension ability

xii. Attempt the reading comprehension questions. This was done by reading the comprehension passage carefully and answering the questions that follows. A sample of the answers to one of the questions posed reads *"The system stood as the best*

because it made it possible to reduce the spread and danger of insects and weeds on farmland".

It is also the duty of the teacher to ask provoking questions that would lead to analytical thinking, and using pictures and titles of passages to spur understanding of a text and so on.

Furthermore, emanating from the findings via qualitative instrument clearly indicated that schema theory technique facilitates better comprehension of texts than the traditional method of teaching reading comprehension. Therefore, this study recommends that schema theory technique should be employed when the objective of teaching reading is for comprehension. This study further suggests that schema theory technique should be made available in schools for teachers to read and digest the tenets of the theory. Teachers should provide variety of reading materials like excerpts from magazines, newspapers and so on. Students could be allowed to take such excerpts and recommended texts home to read. It will also move them into reading other texts and by so doing, students schemata would develop. This implies that they would be exposed to many vocabularies (Linguistics schemata) which further mean that they could understand texts much easier.

Also, the result of the findings showed that schema theory technique is a very effective means to facilitate students' ability to comprehend reading texts of various levels ranging from: Literal, inferential and reading for critical interpretation and evaluation. This is so because students taught reading at these levels using schema theory technique (experimental groups) performed better than those who were taught using the traditional method (control groups). As such, this study suggests that schema theory technique should be incorporated into secondary school curriculum especially at the junior level. This is because at this level, students are expected to read to learn and not learn to read. Teachers should as well guide students to draw inferences or meaning of words based on contexts of usage, explains titles, pictures, and new words to students

in other to spur comprehension and facilitates class discussions. When this is achieved students performances in reading comprehension would take a positive shape.

As a result of the findings mentioned, this study recommends that curriculum planners of secondary English language education should emphasize the use of schema theory technique for reading comprehension teaching and learning in the minimum standard document of secondary school students. In the same vein, curriculum planners need to develop clear learning objectives, scope and sequence of reading programmes by the use of appropriate reading technique in which students should be directly involved. By so doing, teachers and researchers may be properly informed on the right strategy to employ when teaching reading comprehension particularly in secondary schools. This is because, through empirical means, the present study has shown that students comprehend texts better when schema theory technique was used by the teachers.

5.4 Suggestions for Further Studies

The following are suggestions for further studies in the related field.

a) effect of linguistic schema on reading for increase in vocabulary comprehension ability of secondary school students
b) effect of formal schema on reading for word meaning of secondary school students
c) effect of content schema on reading for related ideas of secondary school students
d) effect of schema theory on the listening comprehension ability of students

However, the results of the present study suggest that the issue of improving in other aspects of language through schema theory is a fertile ground for further research.

References

Aboderin, Y. & Dele, O. (1981). *A Guide to the teaching of reading and comprehension in English for students and practicing teachers.* Ado-Ekiti: Omolayo Press and Publishers.

Adams, M. J. (1982). *Language and comprehension.* Holland: North-Holland Publishing Company.

Adams, M.J & Collins, A. (1979). *A Schema-theory view of reading. In new directions in discourse processing.* New Jersey: Ablex Publishing Corporation.

Adiguin, M. & Oyelude, A. (2003). *Libraries as tools for development:* Survey of users of Oyo state public liberty ODY.Nigeria.

Aebersold, J. A. & Field, M. L. (1997). *From reader to reading teacher*. Cambridge: Cambridge University Press.

Agumanu, J. I. (1980). Promoting reading habits among students in school. *Library Bulletin: Anambra State Libraries Association Bulletin.* Vol. 9 No. 2

Akinbode, J. O. (2006). Reasons for mass failures in senior secondary certificate examinations English language in Nigeria**.** *An International journal of the teacher registration council of Nigeria.* Vol. 1 No. 3 Abuja.

Akmajian, A., Richard, A. D., Ann, K. F., & Robert, M.H.(2003). *Linguistics: An introduction to language and communication*. USA: Mit Press Cambridge.

Alderson, J. C. (2000). *Assessing reading.* Cambridge: Cambridge University Press.

Al-Issa, A. (2006). Schema theory and L2 reading comprehension: Implications for teaching. *Journal of college teaching & learning,* 3(7), 41-48.

Aliyu, J. S. (2006). *Upgrading English achievement.* Zaria, Kaduna: Tamaza Publishing Limited.

Anderson & Pearson. (1987). A Schema theory view of basic process in reading comprehension, *TESOL Quarterly,* vol 21 No 3.

Anderson, R. C. & Pearson, P. D. (1984). *A Schema-theoretic view of basic processes in reading comprehension.* in Carrell, P.L., Devine, J. and Eskey, D.E. (eds) (1988) *Interactive approaches to second language reading.* Cambridge: Cambridge University Press.

Anderson, R. C. (1977). *The Notion of schemata and the educational enterprise.* In R. C. Anderson, Spiro, R. J., & Monatague,W. E. (1977). *Schooling and the acquisition of knowledge*. (pp.415-431). Hillsdale, N.J.: Lawrence Erlbaum.

Anderson, R. C. (1984). *Role of the reader's schema in comprehension, learning and memory.* In R. C. Anderson, J. Osborn, & R. J. Tierney (eds.), *Learning to read in American school.*

Anderson, R. C. (1997). *The Notion of schema and the educational enterprise: General discussion of the conference.* In R.C. Anderson, J. Spiro, & W.E. Montgue, Schooling and the Acquisition of knowledge,(ed). Hillsdale: Erlbaum.

Anderson, R. C., & Person, P. D. (1984). A Schema-theoretic view of basic processes in reading comprehension. In O. D. Pearson (Ed.), *Handbook of reading research* (pp. 255-291). NJ: Longman.

Au, K.H. (1979). Using the experience-text-relationship method with minority children. *The reading teacher. Vol.*32:677-679.

Auerbach, E. R. & Paxton, D. (1997). It's not the English thing: Bringing reading research into the ESL Classroom. *TESOL Quarterly,* 31,237-260.

Ausubel, D. P. (1961). The use of advance organizers in the learning and retention of meaningful verbal material. *Journal of Educational Psychology*. Vol. 51. Pg. 267-272.

Azikiwe, U. (1998). *Language teaching and learning.* Nsukka, Nigeria: Africana Fep Publishers Ltd.

Bartlett, F. C. (1932). *Remembering: A Study in experimental and social psychology*. Cambridge: Cambridge University Press.

Bello, R. & Ajayi, O.O.S. (2000) *Research method & statistical analyses*. Ilorin: Haytee Press and publishing company Limited.

Block, C.C. & Pressley, M.(2002). *Comprehension instruction:research based best practices. New York: Guilford Press.www.ibe.unesco.org.Accessed on 2/08/2013.*

Bloor and Bloor (1995). *The functional analysis of English: Hallidayan Approach*

Bower, G. H., Black, J. B., & Turner, T. J. (1979). Scripts in memory for text. *Cognitive Psychology.* 11, 177-220.

Bransford, J. D., & Frank, J. J.(1971). The abstraction of linguistic ideas*: Cognitive Psychology.* 2(4), 1971, pp. 331-350.

Brown, H. D. (2001). *Teaching by principles: An interactive approach to language pedagogy* (2nd edition). New York: Longman Pearson Education.

Carrell, P. & Floyd, P. (1987). *Effects on ESL reading of teaching cultural content schema.* Language Learning, 37, 88-108.

Carrell, P. L. (1987). Readability in ESL**.** *Reading in a Foreign Language,* 4, 21-41.

Carrell, P. L. (1987). Content and Formal Schemata in ESL Reading. *TESOL Quarterly*, 21, 461–481.

Carrell, P. L. (1988a). *Some causes of text-boundedness and schema interference in ESL reading.* in Carrell, P. L., Devine, J. and Eskey, D.E. (eds) (1988). *Interactive approaches to second language reading.* Cambridge: Cambridge University Press (CUP).

Carrell, P.L. (1988b). *Interactive text processing: Implications for ESL/second language reading classrooms*. in Carrell, P.L., Devine, J. and Eskey, D.E. (eds) (1988). *Interactive approaches to second language reading.* Cambridge: Cambridge University Press (CUP).

Carrell, P. L. (2006). *Introduction: Interactive approaches to second language reading*. (ed). by P. L. Carrell, J. Devine, & D. E. Eskey. New York: Cambridge University Press (CUP).

Carrell, P.L. & Eisterhold, J.C. (1983). *Schema theory and ESL reading pedagogy*. in Carrell, P.L., Devine, J. and Eskey, D.E. (eds) (1988). *Interactive approaches to second language reading.* Cambridge: Cambridge University Press(CUP).

Chastain, K. (1988). *Developing second language skills: Theory to practice.* (3rd ed.). New York: Harcourt Brace Jovanovich Publisher.

Chia, H. L. (2001). Reading activities for effective top-down processing. *Forum*, Vol. 39 No.1 Pg 22-36.

Clapham, C. (1996). *A Study of the effect of background knowledge on reading comprehension*. Cambridge: Cambridge University Press (CUP).

Clapham, C. (1996). *The development of IELTS: A study of the effect of background knowledge on reading comprehension*. Cambridge: Cambridge University Press(CUP).

Cook, G. (1989). *Discourse in language teaching: A scheme for teacher education.* Oxford: Oxford University Press.

Cook, G. (1997). Key Concepts in ELT. *ELT Journal*. Vol. 51 No.1. Oxford: Oxford University Press.

Cooper, J. D. (2000). *Literacy-helping children construct meaning*. 4th ed. Boston, MA: Houghton Mifflin company.

Daniel, K. J. (2005). *Advance organizers: Activating and building schema for more successful learning in students with disabilities.* Dr. Pollway SPED 644.

Downing, J. (1969) How children think about reading. *The Reading Teacher*. Vol. 23 Pg 217-230.

Edwards, R. & McDonald, J. L. (1993). *Schema theory and listening*, pp. 60-77. In A.D. Wolvin, & C. G. Coakley, (Ed), Perspective on listening. The United States: Ablex Publishing Corporation.

Ellis, R. (1999a). *Item versus system learning: Explaining free variation*. Oxford: Oxford University Press.

Erten, I. H., & Razi, S. (2009). The effect of cultural familiarity on reading comprehension. *Reading in a Foreign Language Vol.* 21. No.1 pg 60-77.

Farris, P. J. (2004). *Teaching reading: A balanced approach for today's classroom*. NY: McGraw-Hill.

Floyd, P. & Carrell, P. L. (1987). Effects on ESL reading of teaching cultural content schemata. *Journal of College Teaching & Learning*. Vol. 3 No. 1.

Gagne, R. & Glaser.R. (1987). Foundations. *Hillsdale. In R. Gagne (Ed.). Instructional Technology*: *Foundations*.(pp.210-212). Hillsdale.NJ: Erlbaum.

Ganjang, R. (1997). Approaches to teaching beginners reading skills. In Oyetunde O.T, Aliyu, J.S., Nwoke, N and Miri, F.A (Eds). English teaching improvement. Jos: Lecaps Publishers.

Gates, A. & MacGinitie W. Gates-MacGinitie Reading Test (Survey D). (1965) NewYork: Teachers College Press, Teachers College, Columbia University.

Goh, C. (2002). Exploring listening comprehension tactics and their interaction patterns. *System, Vol.* 30, pp. 185-206.

Goodman, K. S. (1970**).** Reading as a psycholinguistic guessing game**.** In H. Singer and R. b. Ruddell . (Eds). Theoretical models and processes of reading. Newark, N.J.: *International Reading Association. Journal of reading specialist,* Vol.6 No. 1.

Goodman, K. S. (1994). Reading, writing and written texts: A transactional socio-psycholinguistic view. In R. Ruddell, M. Ruddell, & H. Singer (Ed.).DE: *International Reading Association. Journal of reading specialist. Vol. 6. No.1.*

Goodman, K.S. (1968).*The psycholinguistic nature of the reading process.* Dtroit: Wayne State University Press. *Teaching and researching reading.* Harlow: Pearson Education.

Grabe, W. & Stoller, L. F. (2001). *Reading for academic purposes: Guidelines for the ESL/EFL teacher***.** In M. Celce-Murcia (Ed.), *Teaching English as a second or foreign language* (3rd edition) (pp. 187-203). Boston: Heinle & Heinle.

Grabe, W. (2002). *Dilemmas for the development of second language reading abilities.* In J.C.Richards and W.A. Renandya (Eds.), *Methodology in language teaching* (pp. 276-286). Cambridge: Cambridge University Press.

Grabe, W. (2005). *Teaching and researching reading*. Beijing: Foreign Language Teaching and Research Press.

Grellet, F.(1981) *Developing reading skills: A practical guide to reading comprehension exercises.* Cambridge: Cambridge University Press.

Gu, P. Y. (2003). Fine brush and hreehand: The vocabulary-learning art of two successful Chinese EFL learners. *TESOL Quarterly,* Vol. 37. No.1. pg 73-104.

Halliday, M.A.K.(1973). *Exploration in the function of language*. London: Edward Arnold.

Halliday, M.A.K. & Hassan,(1976). *Cohesion in English*. London: Longman

Harmer, J. (1991). *The practice of English language teaching.* London: Longman.

Hart, B. & Risely, T. R. (2013). The early catastrophe: The 30 million word gap by age 3. *America Educator*, Vol. 22. No. 49

Hudson, T. (1982). *The effects of induced schemata on the "short circuit" in L2 reading: Non-decoding factors in L2 reading performance*. In P. L. Carrell, J. Devine, & D. E. Eskey (Eds.), *Interactive approaches to second language reading*. Cambridge:Cambridge University Press.

Ikonta, N. R. (2004). Reading to write: Strategy for improving the writing performance of pre-service student teachers of English language. *Journal of literacy and reading in Nigeria*. Vol. 10. No. 1.

Imosili, C.I. (1996) *Social research methods for Nigerian students.* Lagos: Malthouse Press.

Jacky. (2006). *ICT teaching experience sharing in higher education*. Available on http://www.deanproject.eu/turkish/pdfs/23004.pdf.

Johns, J. (1972) Children's perceptions of reading and their reading achievement. *Journal of the Association for the Study of Perceptions*. Vol. 7. Pg 18-20.

Johns, J.(1974) Concepts of reading among good and poor readers. *Education.* Vol. 95 Pg 58-60.

Johns, J., & Ellis, D. (1976) Reading: Children tell it like it is. *Reading World*. Vol. 16(2) Pg 115-128.

Johnson, P. (1982). Effects on reading comprehension of building background knowledge. *TESOL Quarterly*, Vol.16. Pg. 503–516.

Jun, W., Xioa-hui, L. and Wei-hua, W. (2007). Analysis of schema theory and its influence on reading.*US-China Foreign Language:School of Foreign Languages.* Wuhan University of Technology, China.

Kachru, Y. (1983). Linguistics and written discourse in particular language: contrastive studies: English and Hindi. In Kaplan, R. B. (ed). *Annual Review of Applied Linguistics.* Vol TI. Row1ey, MA: Newbury House.

Kalmes, B. (2005). *Schema activation strategies.* Cambridge: Cambridge University Press.

Kant, I. (1781). *Critique of pure reason. Translated to English* by Smith, N. K. (1963). Macmillan Publishing Company.

Kaplan, R. B. (1966). Cultural thought patterns in intercultural education. *Language learning,* Vol. 16. No. 1. pg. 1-20.

Kaplan, R. B. (1976). A further note on contrastive rhetoric. *Communication Quarterly*. Vol. 24. Pg. 12-19.

Kolo, F. D. (2003). *Basic research concepts for behavioral researchers.* Zaria, Kaduna: Ahmadu Bello University Press.

Kramsch. (1993). *Context and culture in language teaching*. Cambridge: Cambridge University Press.

Krashen, S. (1993). *The power of reading: Insights from the research*. Eaglewood, CO: Libraries Unlimited, Inc.

Landry, K. (2002). **Schemata in second language reading. *The Reading Matrix*, Vol. 2.**

Langer, J. A. (1981). From theory to practice: A pre-reading plan. *Journal of Reading,* Vol. 25. Pg. 152-156.

Laufer, B. (1997). *The lexical plight in SLR: Words you don't know, words you think you know and words you can't guess*. In J. Coady & T. Huckin (Eds), *Second language vocabulary acquisition*. Cambridge: Cambridge University Press.

Levine, A. & Reves, T. (1990). Does the method of vocabulary presentation make a difference? *TESL Canada Journal* Vol. 8 Pg. 36-52.

Li, X., Wu, J. & Wang, W. (2007). Analysis of schema theory and its influence on reading. *US-China Foreign Language* . Vol. 5 No. 11. Pg. 8-21.

Long, D. R. (1989). Second language listening comprehension: A schema-theoretic perspective. *The modern language journal.* Vol. 73. Pg. 32-40.

Mandler, J. M. (1984). *Stories, scripts, and scenes: Aspects of schema theory*. Hillsdale, NJ: Lawrence Erlbaum Associates.

Mason, G. (1967) Preschoolers concepts of reading. *The Reading Teacher*. Vol. 21(2)Pg 130-132.

McCarthy, F. H. (2000).Lexical and grammatical knowledge in reading comprehension and listening comprehension by foreign language learners of Spanish. *Journal of foreign language.*11(2) p.323.

McCarthy, M. (1991). *Discourse analysis for language teachers*. Cambridge: Cambridge University Press.

McQuillan, T.(1994). Reading versus grammar; what students think is pleasurable for language acquisition. *Journal of Applied Language Learning*. Vol 5. P.95-100

Mitchell, R. & Myles, F. (1998). *Second language learning theories.* Great Britain: Hodder Education: An Hachette UK Company.

Morris,A.& Stewart-Dore(1984). *Learning to learn from text: Effective reading in the content areas.* Sydney:Addison-Wesley.

Myhill, D., Jones, S. & Hopper, R. (2006). *Talking, listening, learning: Effective talk in the primary classroom.* The United Kingdom: Bell & Bain Ltd, Glasgow.

Nassaji, H. (2002). Schema theory and knowledge-based processes in second language reading comprehension: A need for alternative perspectives. *Language Learning,* Vol. 52. Pg. 439–481.

Nassaji, H. (2003). Higher-level and lower-level text processing skills in advanced ESL reading comprehension. *Language Learning.* Vol. 87. Pg. 261-276.

Nist, S. L. & Mealey, D. L. (1991).Teacher-directed comprehension strategies**.** In Flippo, R. & Caverly, N. (Ed.), Teaching reading and study strategies at the college level. *Newark, DE: International Reading Association.*

Nostrand, H. L. (1989). Authentic Texts and Cultural Authenticity***:*** An editorial. The Modern *Language Journal,* Vol. 73. Pg. 49-52.

Nunan, D. (2007). *Listening in Language Learning.* Sino-US English teaching, Vol. 1 (6) ,pg. 32-33, USA.

Nuttal, C. (1996). *Teaching reading skill in foreign language.* London: Heinemann.

Nuttal, C. (2002). *Teaching reading skills in a foreign language*. Shanghai: Shanghai Foreign Language Education Press.

Odumuh, T. O. (2004). Primary school literacy as a tool for youth development and national integration in Nigeria. *Journal of literacy and reading in Nigeria.* Vol. 10. No.1.

Olaofe, I. A. (1993). *Communicate English: A rapid improvement language course for secondary and tertiary institutions.* Zaria, Kaduna: Tamaza Publishing Company, Ltd.

Olaofe, I. A. & Masembe, C. S. (2006). *Reading in advanced tertiary and university second language context: A clause relation approach.* Zaria, Kaduna: Tamaza Publishing Company Ltd.

Olaofe, I. A. (2010). *Research writing for academic growth.* Zaria, Kaduna: Ahmadu Bello University Press Limited.

Olaofe, I. A. (2013). *Teaching English in second language adverse situations: A solution- based approach.* Zaria, Kaduna: Yahaya Ventures, General Printers and Publishers.

Olaofe, I.A. & Masembe, C. S.(2006). *Reading comprehension in lower, middle and senior secondary school contexts: A clause relational approach.* Zaria:Tamaza Publishing Company.Ltd.

Olayiwola, A. O. (2007). *Procedures in eduactional research*. Kaduna: Kingo (Nig) Limited.

Oller, J.W. (1995). Adding abstract to formal and content schemata: results of recent work in peircean semiotics. *Applied Linguistics, 16*(3), 273-306.

Orasanu, J. (1986). *Reading comprehension: From research to practice*. New Jersey: Lawence Erlbaulm associates, Inc. Publishers.

Ormrod, J. E. (2006). *Educational psychology developing learners*. 5th ed. New Jersey: Prentice Hall.

Owotunde, R. O. Ugodulunwa, C. and Ozoji, E. D. (2002). *Practical steps to research in education*. Jos: Deka Publication.

Oxford, R. & Scarcella, R. (1994). Second language vocabulary learning among adults: State of the art in vocabulary instruction system. *Journal of Educators Vol.*22; p 231-243

Oyotunde,T. (1991). How parent and teachers can help children become good readers. *Jos reading association of Nigeria.*

Peglar. P. (2003). *Models of reading.* Retrieved on http://www.ehow.com/models-of-the-reading-process/) 17, 12 at Jacky.2006.

Plastina, A.F. (1997). *MA in linguistics.* (TESOL) University of Surrey, U.K. Unpublished.

Pratami, A. (2011). *The effect of reciprocal questioning strategy toward students' skill in reading comprehension at second semester of English study program of UMB.* Bengkulu: Unpublished Thesis of FKIP UMB.

Psybox, L. (2002). *Schema.* from http://www.teachingenglish.org.uk/think/articles/theories-reading.

Rapp, D. N., & Van den Broek, P. (2005). Dynamic text comprehension: An integrative view of reading. *Current directions in psychological science.* Vol. 14, 276-279.

Reid, J. F. (1966) Learning to think about reading. *Educational Research.* Vol. 9 Pg 56-62.

Resnick, L. B. (1984). *Comprehending and learning: Implications for a cognitive theory of instruction.* In Mandl, H, N.L Stein & T. Trabasso (eds.) Learning and comprehension of text. London: LEA.

Reutzel, D. R. (1985*).* Reconciling schema theory and the basic reading lesson. *The reading teacher.* Vol 39. No.2. Pg. 194-198.

Richards, J. C. & Renanadya W. A. (2002). *Methodology in language teaching.* Cambridge: Cambridge University Press.

Ringler, L. H. & Weber C. K (1984). *A language-thinking approach to reading.* San Diego: Harcourt Brace Jovanovich, Ink.

Ruddell, R. B. (2002). *Teaching children to read and write: becoming an effective literacy Teacher*. 3rd ed. NY: A Pearson Education Company.

Rumelhart, D. E. (1977). *Toward an interactive model of reading, in attention and performance*. New York: Academic Press.

Rumelhart, D. E. (1994). Toward an interactive model of reading. In R. Ruddell, M. Ruddell, & H. Singer (Eds.), theoretical models and processes of reading (4th ed.) P. 864-894. Newark, Del.: *International reading association.*

Santrock, J. W. (2008). *Educational psychology*. 3rd ed. Boston: McGraw-Hill.

Schenckner, P. J. (1976) *The concepts of reading of selected first and third grade children and the relationship of these concepts to the children's intelligence and reading achievement*. Unpublished doctoral dissertation, University of Northern Colorado.

Shook, D.J.(1994). FL/SL reading grammatical information and input to intake phenomena. *Journal of applied language learning* vol.5. 2000. P57-93.

Sinclair, j.(1991). *Collins cobuild English grammar*. London: Harper Collins Publishers.

Slater, W. H. Graves, M. J. & Picill, G. L. (1985). Effects of structural organizers on ninth-grade students comprehension and recall of four patterns of expository text. *Reading research quarterly*, 20(1985):189-202.

Smith, F. (1986). *Understanding reading: A psycholinguistic analysis of reading and learning read.* Hillsdale, NJ: Erlbaum.

Solarin, S. (1968). *English grammar and comprehension*. Nigeria: Macmillan Press.

Spratt, M. (1994). *English for the teachers: A language development course*. London: Cambridge University Press.

Steinberg, R. (1987*). Most vocabulary is learned from context*. In Mckeowan and Cruits(Eds.). Pg. 89-105.

Swaffar, J. , Arens, K. & Byrones,H. (1991). *Reading for meaning: an integrated approach to language learning.* Eaglewood Cliffs, NJ: Prentice Hall.

Talbot, D. P. & Allan, A. (1991). *Hong Kong students reading expository prose: Replication of the effects of rhetorical organization on ESL readers* by Patricia Carrell, Working Papers of the Department of English, City Polytechnic of Hong Kong, 3(1), pg. 52-63.

Tannen, D. (1979). *What's in a frame? surface evidence for underlying expectations.*In Freedle, R. O. (ed.). *New directions in discourse processing: Advances in discourse processes.* Pg. 139-81. Norwood, N.J: Ablex,

Texas Educational Agency. (2002). *Comprehension instruction.* 9-12. Retrieved from http://www.netxv.net/pm_attach/67/TRI-Comprehension_Instr.pdf

Tudor, I. (1989). *Pre-reading: A categorization of formats*. System Vol.17. Pg 323-338.

Ullman, M.T. (2004). Contribution to memory circuits to language: *The declarative/procedural model cognition Journal* Vol.92. P. 231-270.

Van Dijk, T. A., & Kintsch, W. (1983). *Strategies of discourse comprehension.* New York: Academic Press.

Vocca, R. T. & Vocca, J. L. (1999). *Content area reading: Literacy and learning across the curriculum.*(6th Ed.). New York: Longman.

Wallace, C. (1992). *Reading.* Oxford: Oxford University Press.

Weintraub, S. & Denny, T. (1965) What do beginning first graders say about reading? *Childhood Education*. Pg 326-327.

Widdowson, H. G. (1983). *Learning purpose and language*. London: Oxford University Press.

Wifredo, S. (1995). Construct validity in reading tests. *Forum,* Vol. 33 No. 1.

Williams, E. (1987). Classroom reading through activation of content-based schemata. *Reading in a foreign language.* Vol.22.

Williams. D. (2004). *English language teaching: An integrated approach.* Ibadan: Spectrum Books Ltd.

www.teachingenglish.org.uk/think/article/thoeries- reading.

Xie, X. (2005). The influence of schema theory on foreign language reading comprehension. *The English teacher.* Vol 34. pg. 65-75.

Yani, S.D. (2001). *Reading habits for senior secondary school students in Zaria Local Government Area*. Unpublished MLS thesis A.B.U Zaria.

Yu-hui, L., Li-rong, Z. & Yue, N. (2010). Application of schema theory in teaching college English reading. *Canadian Social Science.* Vol 6. No 1.

Yule, G. (1985). *The study of language*. Oxford: Oxford University Press.

Zhang, Z. (1993). *Literature review on reading strategy research.* (ED356643), Retrieved on June, 2012.

Zimmerman, B. J. & Bandura, A. (1994). Impact of self-regulatory influences on writing course attainment. *American educational research journal.* Vol. 31. Pg. 845-862.

Zimmerman, C. B. (1997*). Historical trends in second language vocabulary instruction. In* Coady, J & Thomas, H. (Eds.). *second language vocabulary acquisition.* P. 99-100. Cambridge: Cambridge University Press.

APPENDIX 1

Reading Comprehension Exercises

These *"Reading Comprehension Passages"* are for Masters' thesis. The essence is to examine the effect of schema theory on second language learners' performance in reading comprehension of JSS two students. These reading comprehension exercises are carefully designed to obtain responses from GJSS, Gyellesu and GJSS, Aminu students as sample of the target population.

Instruction: Answer all questions

Time: 1 Hour

Section A (Reading for Literal Comprehension)

HIV/AIDS

Since 1986, when the first Acquired Immune Deficiency Syndrome (AIDS) case was reported in Nigeria, the disease has spread like wildfire. By 1991, the number had gone up to 209. Nobody knows the exact figure today as many cases go unreported.

Experts are of the opinion that the disease is so nearing epidemic proportions that by year 2013 about two million cases may be diagnosed in the country. In the same vein, the World Health Organization (WHO) reports that by that time, more than five million children throughout the world will be orphaned as a result of the death of their AIDS- infected parents.

There is no doubt that the virus that causes AIDS, known as HIV is contained in the body fluids. Therefore, the main way it is passed from one person to another is through sex with an infected person. Other ways include blood transfusion and the use of unsterilized needles or knives used for operations. Many countries are now suffering from the scourge of AIDS. Nigeria with a population of over 120 million remains Africa's most populous country. It is clear that unless drastic steps are taken by the government, the nation will have a big problem on her hands.

Comprehension Questions

Instruction: Read the passage carefully and answer the following questions

1. Where does the HIV virus stay in the human body?
a. In the body fluid
b. In the chest
c. In the mouth
d. None of the above

2. The word epidemic as used in the second paragraph means
a. Restricted

b. Sad
c. Restrictive
d. Widespread

3. Which of the following can correctly replace the word orphaned used in the second paragraph?
a. Left lifeless
b. Made powerless
c. Left parentless
d. Kept bloodless

4. The acronym AIDS means
a. Human Immune Deficiency Syndrome
b. Acquired Immune Deficiency Syndrome
c. Immune Deficiency Virus
d. Acquired Inner Deficiency Symptom

5. According to the writer, which country may have the highest number of HIV/AIDS victims in Africa?

6. Which of these statements is true about HIV/AIDS victims in Africa
a. Nigeria remains the most populous country in Africa with the highest HIV/AIDS Victim
b. Nigeria is not among the African countries in the world with a high increase in HIV/AIDS victims
c. Africa has the highest number of HIV/AIDS victims.
d. None of the above

7. According to the passage HIV can be contacted through
a. Blood transfusion and the use of unsterilized needles
b. Contact with infected person
c. Kiss and hug
d. Sexual intercourse and handshake

Section B (Reading for Inferential Comprehension)

Africa is a very well-defined continent. There is not just a clear-cut boundary with the neighboring Europe and Asia, its enormous land-mass is comparatively left unsegregated by the fracturing influence of the sea. For centuries, Africans had to get clearance from distant before they could relate to their next door neighbors. Once impossible now difficult, a legacy of colonialism is communication and transportation between African States.

The convenience of our transport and practically of sea transport make them indispensable as the credible modes by which the vast continent not only makes physical contacts with itself, but also

maintains indubitable links with the outside world. No sooner had the earliest air service operator in the world established themselves than Africa joined in the new glamour mode of transportation. Unlike sea transport, air operation has very few unconquerable constraints and air transport is Africa's best developed and most popular international mode of transport.

Comprehension Questions

Instruction: Read the above passage carefully and answer the following questions:

1. By Africa is a well-defined continent, the writer is suggesting
a. Africa can be defined
b. Africa is an ill-structured continent
c. Africa's boundaries are clearly marked
d. None of the above

2. Air and sea transport can be
a. Convenient, not feasible, necessary and acceptable means of contact in Africa today.
b. Convenient, acceptable, unnecessary means of contact in Africa.
c. Inconvenient, unacceptable, necessary means of contact in Africa today
d. Convenient, feasible, necessary and acceptable means of contact in Africa today

3. From the passage, we can infer that
a. Sea transport has more problems than air transport
b. Air transport has more problems than sea transport
c. Both are equally problematic
d. Neither of them is problematic

4. According to the passage.
a. Continental communication could not be but slow and steady
b. Continental communication could be slow and steady if development is to be achieved
c. Continental communication could be slow but steady if development is to be achieved.
d. None of the above.

5. What possible title can be given to the passage?
a. The land mass of Africa
b. The continent of Africa
c. Africa's cultural heritage
d. None of the above

6. The conclusion the writer wants us to draw from the passage
a. Africa, the centerpiece of communication and transportation
b. Communication and transportation in Africa: past and present
c. The shape of transportation and communication today

d. Communication, transportation and Africa unity

Section C (Reading for Critical Interpretation and Evaluation Comprehension)

Agriculture was an important economic activity. It absorbed a large number of people and many other economic activities resolved around it. Agriculture made it possible to create and accumulate appropriate wealth in the form of foodstuffs and cash crops. Agriculture encouraged a rapid increase in population. It also encouraged a degree of urbanization which made it possible for people to engage in and finance non-agricultural activities.

The systems of cultivation varied considerably but the following were common: Shifting cultivation, irrigation, permanent cultivation, rotational bush fallow and mixed cropping. The choice of any of these systems depended much on the availability of land, the land tenure system and physiographic factors. Shifting cultivation however, stood out as the most widespread. The system was most effective in an economy where land was not too scarce since it called for a temporary abandonment of over-used land for as long as it could regain its fertility. Shifting cultivation had a number of advantages: it made it possible to reduce the spread and danger of insects and weeds and for farmland to regain its fertility. Pre-colonial agriculture was quite efficient.

Comprehension Questions

Instruction: Read the passage carefully and answer the following questions.

1. How successful do you think the writer is in providing his point in the second paragraph? Any loophole in the ways the points are stated?

2. Which benefit of agriculture do you consider most important as explained in the first paragraph?

3. The prefix pre- in the word pre-colonial used in the passage means….
   a. After
   b. before
   c. behind
   d. ahead

4. The pronoun "it" used in the expression "it also encouraged a degree of…" used in the first paragraph refers to

a. Urbanization
b. Agriculture
c. Population
d. Finance

5. Which one of the following is NOT true about agriculture in the passage?

a. Agriculture created wealth
b. Agriculture did encourage urbanization
c. Mixed cropping was practiced as a system of agriculture
d. Shifting cultivation did not lead to fertility of farmland.

6. According to the passage, why do you think Agriculture was an important economic activity? Support your points with evidence from the passage.

7. How has the writer proved the claim that ‘shifting cultivation stood out as the most widespread’?