



USE OF SEMANTIC MAPPING AND CONTEXT CLUES IN INSTRUCTION AS EFFECTIVE STRATEGIES FOR READING COMPREHENSION AMONG SENIOR SECONDARY SCHOOL STUDENTS IN JOS SOUTH LGA PLATEAU STATE, NIGERIA

By

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Abstract

In Nigeria, English is an essential language for any pedagogical engagement. Reading comprehension is a vital aspect of the examination conducted by West African Examination Council (WAEC) and National Examination Council (NECO) for final year students of secondary schools in Nigeria. Therefore, the study aims to investigate how senior secondary school (SS2) students' reading comprehension performance will improve through instruction in semantic mapping and context clues. Semantic mapping is where meaning is derived from the surrounding environment of a word as they seek for association or relationship with other words and Context clues are the words, phrases, and sentences that surround an unfamiliar word that can help and explain or give clues to its meaning. A sample of 160 (one hundred and sixty) students were drawn from two schools in Jos South Local Government Area of Plateau State, Nigeria. The two groups were drawn from the same population of 1,878, one of which was the experimental group and the other, the control group. While the experimental group was exposed to the treatment, the control group was not. The quasi- experimental research design was adopted in this study since scheduling and implementation of experimental treatment conditions or randomization and grouping of subjects was not possible. The data for the study were collected using the Adapted Structured Test (AST) which was based on a reading prose passage adopted from the New Oxford Secondary English Course for SSS2. New Edition (NOSEC). The reading passage was used for both the pre-test and the post-test. The achievement of the students was based on their ability to use semantic maps and context clues to replace given words or phrases with other words or phrases which mean the same as used in the comprehension passage. The findings showed a better performance of students' achievement in the post-test than that of the pre-test. It also revealed that the students' performance in reading comprehension after instruction in semantic mapping and context clues is improved. Following the findings, it is recommended that teachers of English Language devote part of their instructional time to teach ways students can identify and use semantic maps and context clues during reading sessions.

Keywords: *Instruction, semantic mapping, Context Clues, Strategies, Reading Comprehension*

Introduction

The place of English language in global activities cannot be overemphasized. According to Crystal (2003), it is a global means of communication and spoken in numerous countries of the world for the purpose of education, technology, commerce, telecommunication, medicine among others. The rise in globalization has tremendously contributed to the spread of English and English Language



Teaching (ELT). Consequently, English as an International Language (EIL) is taught and learned as a Second Language (ESL) in countries formerly colonized by Britain and as a Foreign Language (EFL) in countries like Japan, and China. The English language comprises four language skills categorized into productive skills (speaking and writing) and receptive skills (reading and listening).

In Nigeria, English is an essential linguistic tool for any pedagogical engagement which are the teaching and learning process. Hence, the National Policy on Education (2014), clearly stipulates that English should be taught as a subject in primary schools while the medium of instruction at this level remains the language of the environment for the first three years. It further avers that from the fourth year, English should predominantly be used as the medium of instruction and the language of immediate environment should be taught as a subject. The importance of English is x-rayed by the requisite credit pass in English for an applicant to secure admission to any tertiary institution in Nigeria. Subsequently, upon entry into any tertiary institution in Nigeria, a course tagged 'Use of English' has to be taken and passed by an undergraduate before graduation. Considering the vital role assumed by English, in Nigerian education, instruction in both productive and receptive language skills (which include the reading skill) must be effective.

To receive information, reading is an indispensable language skill for learners. Since they are subject to a continuous flow of information, learners need to prepare themselves for the demands placed on them by reading in school and in the bigger society. Generally, information is received and acted upon when there is understanding—that is comprehension. Abeeleh, Al- Ghazo and Al-Sobh (2021) say that reading comprehension is concerned with the capacity of the reader to obtain meaning from what is read and also involves the sub-skills of word recognition, fluency, lexical knowledge as well as pre-existing knowledge to be undertaken quickly so that the reader gets knowledge from text. Gilakjani and Sabouri (2016) also agree that reading is essential to learning and the ultimate goal of teaching reading is comprehension, a critical proficiency which considerably affects the entire life of the learner.

In students' attempting to demystify new words in a passage for the purpose of understanding, they can use these clues to mark words that they believe will help them decipher the meaning of given word(s) as semantic mapping is a strategy for graphically representing concepts. Semantic maps portray the schematic relations that compose a concept therefore, semantic mapping strategy helps students, especially struggling students, to identify, understand and recall the meaning of words they read in the text. It visually displays the meaning-based connections between a word or phrase and a set of related words or concepts (Zorfass, Gray & Powerup WHATWORKS, 2014). Neneng (2015) opines that semantic mapping can be applied by the teacher in the classroom to improve students' reading comprehension.

Similarly, context clues are the available hints in a text which can facilitate the reader's understanding of novel words within a sentence, paragraph, or passage (Putri & Fitrawati, 2019). Students can use context clues to figure out the meaning of an unfamiliar word they come across in their reading.

Objectives

The aim of this study is to ascertain the effects of instruction in semantic mapping and context clues on senior secondary school students' achievement in reading comprehension. The specific objectives of this study are to:

- i. investigate the students' ability to accurately replace words or phrases with other words or phrases,



- ii. find out the ability of students to correctly summarize a given passage,
- iii. determine the students' ability to correctly retell/paraphrase sentences in a given passage,
- iv. determine students' ability to answer factual or direct comprehension questions correctly.

Statement of Problem

Learning how to read information text to obtain content-area knowledge becomes critical in reading. Vocabulary knowledge, as identified by Mbah and Ogbonnaya-Iduma (2016), is one of the fundamental reading difficulties of many students. Reading comprehension constitutes a vital aspect of final examinations taken by final year students in WAEC (West African Examination Council) and NECO (National Examination Council) WASSCE (West African Senior Secondary Certificate Examination) in Nigeria. It requires the students to carefully read the comprehension passages and answer the questions on them.

The Chief Examiner's Report on the West African Senior School Certificate Examination (WAEC) (2023) on students' results in English Language have shown that there is an improvement although not totally commendable as there was a lot of weaknesses in the area of comprehension. The failure in this subject has been partly attributed to candidates' inability to correctly answer the comprehension questions which include vocabulary replacement and this according to Okeke (2013) is caused by the methods and strategies of teaching the reading skill which is the core of the school curriculum. Poor pedagogical methods and strategies of teaching reading comprehension have been assumed to be responsible for this poor performance.

Consequently, this research attempted to examine the effectiveness of instruction in semantic mapping and context clues with a view to improve achievement in reading comprehension of senior secondary school students. Semantic mapping and Context clues have a place in language teaching and learning pedagogy.

The following research questions will guide the study:

1. To what extent are students who were taught reading comprehension using semantic mapping and context clues able to replace words and phrases with the correct synonyms of used words in reading materials?
2. How are students who were taught reading comprehension using semantic mapping and context clues able to retell / paraphrase the given passage?
3. How are students who are taught reading comprehension using semantic mapping and context clues able to summarize given passage.
4. To what extent are students who were taught reading comprehension using semantic mapping and context clues able to answer given questions on passage?

Significance of the Study

The findings of this study will be beneficial to English Language teachers, students, curriculum planners, course book writers, the Government and stakeholders in education. Teachers of English will see the need to teach semantic mapping and context clues in reading comprehension. To students who are second learners of English Language, it will help them identify better ways of mastering new words found in reading texts/passages. To the curriculum planners, this research will be impactful in the place of planning the language curriculum, to see the need to give reading a place in the curriculum as a subject and deliberate attention be given in the structuring of the strategies of



teaching reading to serve as guide to teachers of English. To other researchers, it will enable them use the findings of this research to study on other strategies for teaching reading comprehension.

Literature Review

Nature and Process of Reading

Reading is a key factor both in the success of an individual and in the development of a nation. It is an individual's hope for the future, a ladder to an individual's success. Good reading ability is particularly critical as a key to job efficiency and professional growth. Ofuani and Gbenedio (2016) maintain that reading encompasses the active participation of the reader who makes connections between existing knowledge and the construction of meaning from the materials read. Reading is more than just seeing words clearly, calling or pronouncing printed words correctly, or even recognizing the meaning of isolated words. It is a process because it involves understanding the meaning of written symbols, typically letters and words and to extract information from print.

Reading Comprehension

Reading requires a lot from the brains. To decode each word, put those words together into sentences and paragraphs, one cannot understand a text without knowing what most of the words mean. Comprehension is the process of making sense of words, sentences and connected text. Comprehension is the major purpose of reading which without, reading is a meaningless activity regardless of age or ability of the reader. It should be noted that the way teachers teach reading comprehension has an important influence on whether or not learners view reading as a meaningful activity.

Semantic Mapping

In order for students to increase their vocabulary knowledge, they may need to know word learning strategies that will help them learn words independently. The use of semantic mapping is one strategy students can use to independently learn words on their own without interrupting the comprehension process. Semantic mapping is a strategy for graphically representing concepts. Graphic organizers can be used as a pre-reading strategy to activate prior knowledge and to introduce key vocabulary words. It can also be used as a post-reading activity to connect words, categories, and new concepts. Students can add to the map and/or alter it after they have finished reading.

The semantic mapping strategy helps students especially struggling students to identify, understand and recall the meaning of words they read in the text. It visually displays the meaning-based connections between a word or phrase and a set of related words or concepts (Zorfass, Gray & Powerup WHATWORKS, 2014). Semantic mapping can be applied by the teacher in the classroom to improve students' reading comprehension (Neneng 2015). Semantic mapping is where meaning is derived from the surrounding environment of a word as they seek for association or relationship with other words. Semantic mapping seeks for the relationship that a word has with other words that are similar to it.

Types of Semantic Maps

There are many types of semantic maps to help understand new words. This study discusses some types of semantic maps which include **a descriptive or thematic map, network map, spider map, a problem-solution outline, a fishbone map, a compare-contrast matrix, a series of events**



chain. These maps have a tree structure with one trunk and many branches which are examples of organic thinking. That is, like a tree, a central idea (the trunk) branches off in many directions.

A **descriptive or thematic map** works well for mapping generic information, but particularly well for mapping hierarchical relationships; **network tree** aims to organize a hierarchical set of information, reflecting superordinate or subordinate elements; a **spider map** can help with organization when the information relating to a main idea or theme does not fit into a hierarchy; a **problem-solution outline** helps students to compare different solutions to a problem; a **fishbone map** may be particularly useful when cause-effect relationships are complex and non-redundant; a **compare-contrast matrix** can help students to compare concepts' attributes; a **series of events chain** can help students organize information according to various steps or stages. Semantic maps can be in these forms:

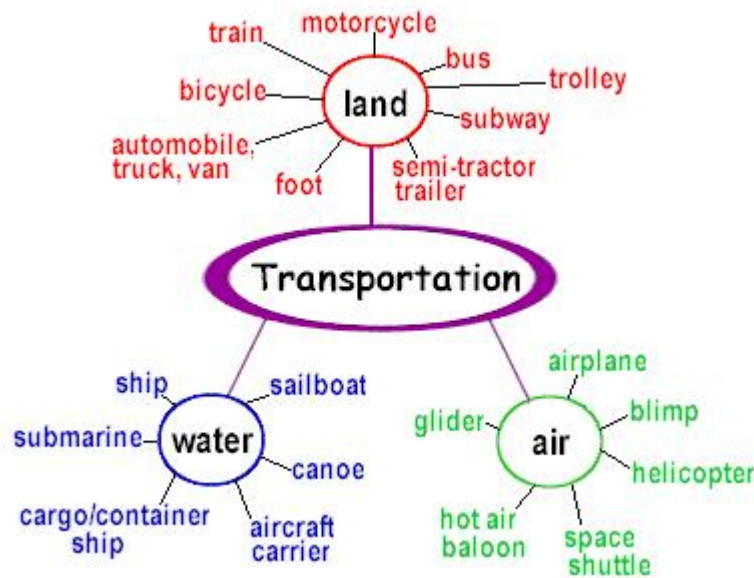


Figure I: A bubble topical organizer by Brown (2015)

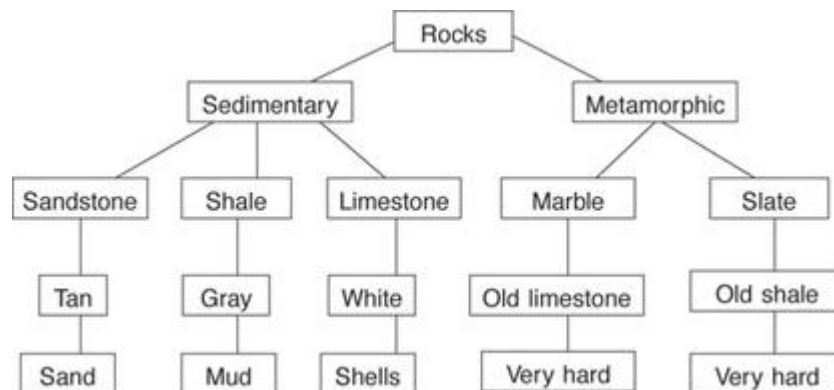


Figure II: A hierarchical topical organizer by (Blodgett, n.d)



Context Clues

Another strategy to use in order to improve students' reading comprehension is the context clues. Context clues are hints of information that help the reader figure out the meaning of unfamiliar words. Context clues are the words, phrases, and sentences that surround an unfamiliar word that can help and explain or give clues to its meaning. Students can use context clues to figure out the meaning of an unfamiliar word they come across in their reading. Bailey (2014) says that when you encounter a word you do not know as you are reading, you can choose to look it up in a dictionary, ignore it or use the surrounding words to help you determine what the word means. The context around any unfamiliar word tells something about its meaning. Tatyana (2013) asserts that context clues are hugely important because their comprehension and effective usage leads to academic success. Kiani (2011) in Sayed and Hamid (2013) stipulates that context clues have a powerful effect on students' comprehension of words and sentences. Knowledge and skill of using words in different contexts play an important role in the comprehension of new concepts, ideas and principles. Often, using context clues mean we do not have to check a dictionary or other reference material, allowing us to continue reading with less disruption (Tatyana, 2013).

Types of Context Clues

There are five types of context clues as described by Georgakopoulos and Polis (2018): example, definition, synonym, antonym, and experience.

A student can look for examples, illustrations or explanations. Difficult or uncommon words may be followed by information to help discern the meaning. Example clues list examples of the unknown word, often in the same sentence. For example: *The boy likes to eat (lots of red meat), **such as hamburgers, steaks, and beef roasts.*** A writer sometimes uses phrases to help identify examples and explanations like *for example, such as, including, consists of, for instance, is like.*

Definitions are embedded in the text. In a definition clue, the author provides the reader with the specific definition, or meaning, of a word right in the sentence. Words such as **are, is, means, and refers to,** can signal that a definition clue may follow. For example: *After the fire, the entire office was (restricted), **that is only a few people could enter, for several days.** The factory supervisor demanded an (inspection), **which is a careful and critical examination of all of the meats processed each day.*** In these examples, the definitions are directly built into the sentences.

Sometimes, surrounding words or phrases contain synonyms of the unknown word. In a synonym context clue, a synonym to the unknown word is used in the same sentence or in a sentence before or after it to give the reader the meaning of the more difficult word. For example: *He is envious of her new car, **feeling jealous,** since he drives his grandpa's old car.*

Antonyms can also be used to help readers figure out the meaning of a word. Antonym clues use words that are the opposite of the unknown word to better explain the unknown word to the reader. For example: *He sometimes acts idiotic, but he is actually very **smart.***

*Joe was exhausted after the trip but Tom was **wide awake and alert.***

Experiences can also be used to explain unknown words. A reader may also infer a word's definition by using context clues combined with logic or prior knowledge even without specific words introducing the meaning of an unknown word, phrases and sentences in the paragraph give further explanation, often enough to make a logical or educated guess as to the meaning of the word.



Methodology

Research Design

A quasi-experimental research design was adopted in the study. Two groups were used for the study: the experimental and control groups. While the experimental group was exposed to the treatment, the control group was not. Quasi experimental research design was adopted in this study since scheduling and implementation of experimental treatment conditions or randomizations and grouping of subjects were not possible. There was no randomization of students into the treatment and control groups. This design has been chosen because intact classes was used to avoid disruption of normal classes. Moreover, strict experimental design was not acceptable to secondary school administrators (because of classroom groupings, strict time tabling and school locations).

Area of the Study

The area of the study is the Jos South Local Government of Plateau State, Nigeria. The study was restricted to all the public senior secondary schools in this Local government.

Population of the Study

The population consisted of all the public senior secondary schools in Jos South Local Government Area of Plateau State, Nigeria. The population to be used for the study consists of senior Students 2 of Government Secondary Schools in Jos South Local Government Area of Plateau State. There are twenty (20) senior secondary schools in Jos South Local Government Area. The population of the SS2 students in the twenty (20) schools in Jos South Local Government Area is 1,878.

Sample and Sampling Technique

Before the sample was drawn, the total number of schools was categorized according to location and two schools out of the twenty (20) schools in the local government area were drawn as sample. 160 students (one hundred and sixty) from two intact classes of SS2 of the selected schools were randomly selected as sample and assigned to experimental and control groups.

Table 1: Distribution of SS2 Students Population and Sample

S/No	Name of School	Population	
Sample			
1.	Government Secondary School Gyel, Bukuru		100
80	(Experimental Group)		
2.	Government Secondary School, Bukuru, Jos South	100	80
	(Control Group)		
Total		200	160

Instrument for Data Collection

The researcher used the Adapted Structured Test with the acronym AST based on reading comprehension content containing semantic maps and context clues.

Description of Instrument

The Adapted Structured Test (AST) was used for both the pre-test and the post-test. The instrument consisted of four sections. Section A contains synonyms of concept words while section B



has sentence making using concept words. Section C and section D contain summary in retelling of passages and answering of comprehension questions respectively. A list of concept words identified in a passage was given in isolation, and students were led to think of as many words as they could to be used in place of the concept words. After the students were through with reading the passages, they were required to make sentences of their own with the concept words given and then summarize the passages in one paragraph in order to test their retelling ability.

Procedure for the Development of the Instrument

The instrument is adapted from the passage on 'Bride-Price and Polygamy' page 19 - 20 in the textbook *New Oxford Secondary English Course for SSS2. New Edition (NOSEC)* 2011 by Ayo Banjo, Uzoma Onaga, Ben Elugbe and Ayo Akano

Validity of Instrument

The researcher presented the instrument to one (1) expert of English Language Education at the Plateau State Polytechnic for validation. The expert gave professional advice and corrections in the area of items and sections of the instrument. The instrument is constructed in line with the process of testing reading comprehension after instruction in semantic mapping and context clues.

Reliability of Instrument

The instrument was trial tested in a pilot study in Government Secondary School, Du, one of the schools in Jos-South Local government Area although it was not used for the main study. 20 (twenty) students were used in the pilot study. The students used possessed the same educational and social characteristics. The purpose of the pilot study was to further validate the instrument for the main study. The scores from the two schools (which was obtained by using the WAEC marking scheme) from the comprehension passage was used to determine the reliability coefficient using Cronbach Alpha. Cronbach's alpha is the average value of the reliability coefficient one would obtain for all possible combinations of items when split into two half-tests.

Method of Data Analysis

The research questions were answered using the mean and standard deviation while the t-Test statistics for paired sample was employed to test the null hypotheses at 0.05 level of significance. This statistical tool was employed because the study involved independent and dependent variables and intends to ascertain the mean achievement scores of students' performance in reading comprehension for both experimental and control groups.

The data were analyzed using t-test statistics for paired sample to find out whether there was a change in the ability of students' achievement in reading comprehension after being exposed to treatment in semantic mapping and context clues. t-test statistical technique was used to test the entire hypothesis in the study.



Results and Discussion

Research Question One

Table 2: The Mean and Variance of Pretest Posttest of the Experimental Group in using Synonyms during Reading Comprehension

Variation	N	MEAN	SD		MEAN	SD
	EXPERIMENTAL GROUP				CONTROL GROUP	
Pretest	80	1.6520	.78580		1.7600	.66678
Posttest	80	2.9250	1.59336		1.8100	.77756

In Table 2 the pretest mean achievement score of the experimental group which is 1.6520 with a standard deviation of 0.78580 is less than the posttest mean achievement score of the experimental which is 2.9250 and the standard deviation is 1.59336. This is an indication that the students in experimental group were able to achieve higher and better in the posttest than in the pretest in the use of synonyms in reading comprehension.

Research Question Two

Table 3: The Mean and Variance of Experimental Group in summarizing a given passage after Treatment

Variation	N	MEAN	SD		MEAN	SD
	EXPERIMENTAL GROUP				CONTROL GROUP	
Pretest	80	1.3000	1.0426		1.8500	.94756
Posttest	80	2.4500	3.3500		1.8400	.89756

Table 3 shows the pretest mean achievement score of the experimental group which is 1.3000 with a standard deviation of 1.04268 is less than the posttest mean achievement score of the experimental which is 2.4500 and the standard deviation is 3.3500. The mean score indicates that the students in experimental group achieved higher and better in the posttest than in the pretest in the in replacing words or phrases with other words or phrases after treatment.



Research Question Three

Table 4: The Mean and Variance of Experimental Group in Retelling the Passage after the Treatment?

Variation	N	MEAN	SD		MEAN	SD
	EXPERIMENTAL GROUP				CONTROL GROUP	
Pretest	80	3.0750	.72858		3.0500	1.9643
Posttest	80	4.1000	1.36410		3.2000	1.9876

Table 4 shows the pretest mean achievement score of the experimental group which is 3.0750 with a standard deviation of 0.72858 is less than the posttest mean achievement score of the experimental which is 4.1000 and the standard deviation is 1.36410. The statistical outcome is an indication that the students in experimental group are better after the treatment than they did before the treatment in retelling the passage.

Research Question Four

Table 5: The Mean and Variance of the Experimental Group in Answering Comprehension Questions

Variation	N	MEAN	SD		MEAN	SD
	EXPERIMENTAL GROUP				CONTROL GROUP	
Pretest	80	4.1250	1.38096		2.2500	1.8567
Posttest	80	5.3500	1.61006		3.3400	1.8745

Table 5 indicates that the pretest mean achievement score of the experimental group which is 4.1250 with a standard deviation of 1.38096 is less than the posttest mean achievement score of the experimental which is 5.3500 and the standard deviation is 1.61006. The result shows that students' achievement was higher after being introduced to context clues and how they are used in answering comprehension questions.

Discussion

In discussing the results of this study, it is important to consider the purpose of this study which is to find out the effects of instruction in semantic mapping and context clues on SS2 students' achievement in reading comprehension. In view of this, in table 2, the instruction the experimental group of this study was exposed to have caused a change in the result of the posttest given while the results of the control group remained poor as they were not exposed to instruction in semantic mapping and context clues in reading comprehension.



Going by the analysis of the findings, the P-value of the pretest posttest of the experimental group in synonym was .000 which is less than the degree of freedom; that means that the experimental group performed better than the control group that P-value was greater than the degree of freedom. This proves Tatyana (2013) and Neneng (2015) assertions that Semantic mapping and context clues can be applied by the teacher in the classroom to improve students' reading comprehension and are hugely important because their comprehension and effective usage lead to academic success.

The better performance by the experimental group over the control group in the use of synonyms and replacing words or phrases with other words or phrases cannot be far from the fact that they were exposed to explicit instruction in semantic mapping and context clues. There is an exception though in the items of retelling of passage and answering of comprehension questions in table 4 and 5. Here, the control group performed slightly well as obtained in the P-value of .019 and .023 respectively. That means that the P-value is greater than the degree of freedom. It would seem that the better performance of the control group in retelling and answering of comprehension questions may be because they understood the passage and so can retell it and answer questions on the passage.

From the foregoing discussion, it implies that given the appropriate instruction in semantic mapping and context clues, students can improve their reading comprehension. This is evident with the experimental group that did better after receiving instruction to improve their achievement in reading comprehension.

Conclusion

Based on the findings of the study explained above, it can be concluded that when semantic mapping and context clues are taught well, it will enhance understanding of reading materials. Although, the use of semantic mapping and context clue are strategies out of many others to helping students in reading comprehension, teachers of English are encouraged to use semantic mapping and context clues because they are straight forward and their types make it easier for students to comprehend unknown words or concepts. Teachers of English are also encouraged to be more attentive and interested at following how much their students are able to comprehend during lessons of reading comprehension.

The study has revealed that it is possible for students to comprehend a reading text if they are given explicit instructions in semantic mapping and context clues. Also, students should be given enough time during reading comprehension lessons to learn how to recognize and use these methods during reading as this will enhance their comprehension.

Recommendations

From the outcome of the study, it is seen that reading comprehension is an important and integral aspect of English Language that when properly handled can lead to students' success in their academic pursuit. Since semantic mapping and context clues have been seen to be strategies that can be used to improve students' ability in reading comprehension, the following recommendations are made:

1. Rather than teach contents only, it might appear advantageous for teachers of English Language wishing to enhance their students' reading comprehension, devote part of their instructional time to teaching ways on how students can identify and use semantic mapping and context clues during reading lessons.



2. It is also pertinent for teachers handling reading comprehension to be knowledgeable about strategies of teaching reading comprehension, especially, using semantic mapping and context clues.
3. Explicit instruction in semantic mapping and context clues should be provided by teachers before students embark on reading comprehension exercises. This will make the students build interest in reading rather than getting frustrated because they do not understand the passage due to difficult vocabulary. This will also reduce the high rate of failure in context area subjects in public examinations since general poor performance is attributed to poor comprehension of concepts in reading texts.
4. Furthermore, an inclusion of strategies to teaching reading, of which include semantic mapping and context clues, in the curriculum of English Language teaching will go a long way at enhancing both teaching and learning, especially in the area of reading comprehension. Deliberate actions should be taken by the English Language curriculum planners to improve the teaching and learning during reading comprehension lessons.
5. In addition, school administrators should make reading a subject thereby giving it a space on the time table. This is in the bid to making students achieve an all-round success academically.

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