Effect of Graphic Organizers on Literal Reading Comprehension of Junior Secondary School Students in Kaduna State, Nigeria

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Abstract

This study employed quasi experimental design. The study investigated the effect of graphic organizers (GOs) on students' literal reading comprehension. The population for the study covered one hundred and sixteen thousand, four hundred and twenty-eight (116,428) junior secondary students in Kaduna Twelve Educational Zones. The sample size was four (4) junior secondary schools from two Educational Zones and ninety-nine (99) students. These students were divided into two groups: experimental and control; each group. The control groups were taught reading comprehension using conventional method while the experimental groups were taught using graphic organizers (GOs) strategy. Pre-test and post-test were administered to the two groups. The data was analyzed using SPSS21. The results indicated that the post-test mean score of the experimental group was 84.66 and the post-test mean score of the control group was 56.33. The result showed that there is a significant difference between the performance of experimental and control groups. It is, therefore, recommended that GOs strategy should be used as an alternative instructional strategy for ESL students' effective performance in reading comprehension across all levels of education. Furthermore, ESL teachers are recommended to employ GOs strategy in their classrooms.

Key Words: Graphic organizers, literal, reading, comprehension

Introduction

Reading is very essential for ESL students because it is not only a subject, but also a service skill that is use even after school. It is also the key and main source for a second language input when students have learned reading effectively. They will be able to explore in some other subject areas. The students too will be able to learn the other language skills (listening, speaking and writing) and components of grammar, discourse and vocabulary effectively through reading. Krashen and Brown (2007) opined that reading is the most important skill among the four language skills as it can improve overall language proficiency and performance.

According to Heilman (1988), reading comprehension is classified into four levels of; literal, interpreting, critical and creative. Literal reading refers to direct stated information in a text. At literal level of comprehension, students are required to identify and memorize the subject which was discussed by the writer explicitly in the text. In other words, the literal level of comprehension involved students' ability to obtain information from the text. Thus, in literal reading, one aims only to understand the explicitly stated information and the reader's understanding could be checked by

examining his ability to recognize and recall facts; identify the main idea and supporting details, categorize, outline and summarize the information.

Most ESL students find it difficult to master reading at literal level, which is an essential part of language learning. Deporter and Hernacki (1999) echoed that students find reading very difficult, so that they are anxious to read. Despite their realization of the high importance of reading. According to Olaofe (2016), some Nigerian students are not interested to read texts due to their inadequate prior knowledge, inability to comprehend the reading texts and complex structure of the textbooks. For many students at the secondary school level, reading classes are considered boring and stressful because of over long reading of texts, unfamiliar vocabulary, lack of pre-reading activities, activating the students' prior knowledge and repetitive teaching (Firmanto, 2005). Since reading comprehension is very crucial, it is very important to find strategies to help their reading comprehension to be beneficial. This study is an attempt to meet that challenge that has lingered for a long time, by investigating whether or not GOs use has a positive effect on students' literal reading comprehension. GOs was selected to investigate because some previous studies (Fisher, 2002; Parker, 2007; Mcknight, 2010; Roa, 2011; Jiang, 2012; Biria and Sharifi 2013; Abroks, 2022) have claimed its effectiveness to help students understand reading comprehension at various levels of education.

Review of Related Literature

Reading Comprehension

Reading comprehension is the process of understanding and interpreting texts/passages to get some specific information. According to Klingner & Geisler (2018), that reading comprehension is a process of constructing meaning from a passage which involves the complex coordination of several processes, such as decoding, word reading, fluency, background knowledge and prior knowledge of the learner. This is confirmed by Grabe & Stoller (2002) who see reading as the ability to draw meaning from the written text and interpret it appropriately. They argued that the process of reading involves a number of skills, such as; word recognition and syntactic processing, and how these skills enable the reader to anticipate text/passage information, select key information, mentally organize it, summarize it, monitor comprehension, repair comprehension breakdown and match comprehension output to readers' goals. For that, reading is an active, not a passive process. This study is in tune with the above claims because reading is an active process that must involve the students at all levels.

These definitions show that while reading, a reader should not only receive the message or meaning embedded by the author, but should also construct meaning from the information provided in the text. Smith, as cited in Pardede (2016) posited that reading is not just extracting meaning from a text, but rather, it is a process of connecting information in the text with the knowledge the reader brings to the act of reading. This is supported by Olaofe & Masembe (2006) who suggested that reading is a holistic process of constructing meaning from written text. This is done through interaction of the knowledge the reader brings to the text and the reader's interpretation of the language that the writer used in the text. Thus, to make sure that students can read effectively, Brown (2004) recommended the teacher to include their understanding of the basic ideas, expressions, idioms, phrases in context, grammar, supporting ideas and vocabulary in the evaluation of reading skills.

According to Heilman et al (1988), reading comprehension is classified into four levels of; literal, interpreting, critical and creative. Literal reading refers to direct stated information in a text. Thus, in literal reading, one aims only to understand the explicitly stated information and the reader's understanding could be checked by examining his ability to recognize and recall facts; identify the

main idea and supporting details, categorize, outline and summarize the information. Interpretative reading deals with what the author means by what is said. It, therefore, necessitates the ability to read between the lines and draw inferences about things implicitly stated. Interpretative reading could also include the skills to interpret figurative language, draw conclusions, predict outcomes, determine the mood and judge the writer's point of view. Critical reading is an active and purposeful process of comprehending, questioning and evaluating printed text, in order to react intelligently to the author's ideas (Pardede, 2007), deal with why the writer says what he says. In critical reading, the reader needs to use some external standard from his own experience; so as to evaluate and judge the quality of the information, the values of the writer's use of language and his reasoning. In other words, the reader should react emotionally and intellectually to the texts. While creative comprehension involves the information and rethinking of ideas. It means, the reader should be involved with what he reads and rethink ideas of his own to implied and inferred meanings and to evaluate and appreciate reactions.

Furthermore, Rumiris (2012) showed that there are seven strategies for improving comprehension reading as thus; monitoring comprehension; metacognition; graphic and semantic organizers; answering questions; generating questions; recognizing story structure and summarizing. Monitoring comprehension could be done by students when instructions are given clearly. Clear instructions guide the learners to be aware and understand the problem when reading the text. Metacognition could be defined as thinking about thinking. An efficient reader uses metacognition strategies to think and has control over their reading. In line with this, Block et al (2002) opined that metacognition is an awareness of knowledge for planning, monitoring and controlling one's learning. Graphic and semantic organizers mean a relationship between concepts in a text via diagrams. GOs can help a reader to focus on a particulars concept and how they are related to other concepts in a text.

The fourth strategy, answering questions is effective because it gives students a purpose for reading. Focusing on what the students are learning, it helps them to think actively as they read, encourages them to monitor their comprehension and help them review the contents as well as relate what they have learned to what they already know. The fifth strategy, generating questions, makes students to ask themselves questions to combine information from different angles of the text. Recognizing story structure enables students identify the contents, which includes characters, setting, events, problem and resolution which is the sixth strategy. While the seventh, summarizing, requires the students to determine what is important in the text and to generate some words by themselves.

Literal Level of Comprehension

According to Heilman et al (1988), reading comprehension is classified into four levels of; literal, interpreting, critical and creative. Literal comprehension is a type of reading that gives information clearly, stated in a passage or text. It is also called factual reading; that gives information from the passage (Oyentunde, 1997). It is the first level of comprehension in reading. It is arguably the simplest level of comprehension. It refers to an understanding of the straight forward meaning of the text, such as facts, vocabulary, dates times, and locations. In literal reading, the reader needs to understand ideas and information explicitly stated in the reading text. The reader is also locating information, using context clues to supply meaning, following specific directions, following a sequence, identifying the stated conclusion, and identifying explicitly stated relationship and organizational patterns. These organizational patterns are cause and effect as well as comparison and contrast. In an examination, questions related to literal comprehension can be answered directly and explicitly from the text.

In literal reading, the students provide situation report of a particular passage or text they have read. They also recall sequence or series of events and provide contextual meaning of the text or passage read. Students can employ literal comprehension skills (key words, skim reading and scanning) to better locate information efficiently. Key words are the content words that carry the most meaning in a text. The students can underline or highlight the key words. Students can skim read by looking at headings and sub-headings, pictures, diagrams, captions, any italicized or bold words and the first and last paragraphs of the text. Students scan read to locate particular elements or specific details in a text, such as key concept, names, dates or certain information in answer to a question.

The present study is designed to investigate the effect GOs on literal comprehension because it is the first level of reading comprehension, and it is a level upon which other levels are built upon.

Graphic Organizers

GOs are visual devices that show information in variety of ways. They employ lines, boxes and circles to form images which depict four ways of information which are: cause / effect, hierarchy, compare/contrast, cycle or linear sequences. These images serve as visual guide to facilitate understanding of the reading text by showing how essential information in a text are organized (Ellis & Howard, 2015). This is in conformity with Parker (2007) and Mcknight (2010) that GOs are visual representatives that sort information in a text.

In the context of learning, GOs are visual frame used to represent knowledge and understanding of a subject matter by organizing vital aspects of a concept into a logical pattern through labels. They have various patterns which are maps, graphs, charts, diagrams or clusters. Mcknight (2010) claimed there are about 100 reproducible GOs that could be used in reading, writing and content area. But this study is only concern with the aspect of reading comprehension not writing. In reading comprehension context, GOs can be effectively used in all lessons for students of all educational levels to motivate and improve their thinking skills. According to Krasnic (2011), students will be able to organize and link key concepts based on what they are reading to have clear thoughts and refine thinking among themselves.

Research Question

What is the effect of graphic organizers on literal reading comprehension of JSS II students in Kaduna state?

Hypothesis

There is no significant difference between the performance of students on literal reading comprehension taught using graphic organizers and those that were taught using conventional approach.

Methodology

Research Design

The study employed quasi – experimental design, using pre-test and post-test with a control group and experimental group. Amin (2005) claimed that quasi-experimental design is the most appropriate for study that involves treatment. The design was appropriate because the study involved subjects in a natural setting and a homogenous population. Below is the design for the study:
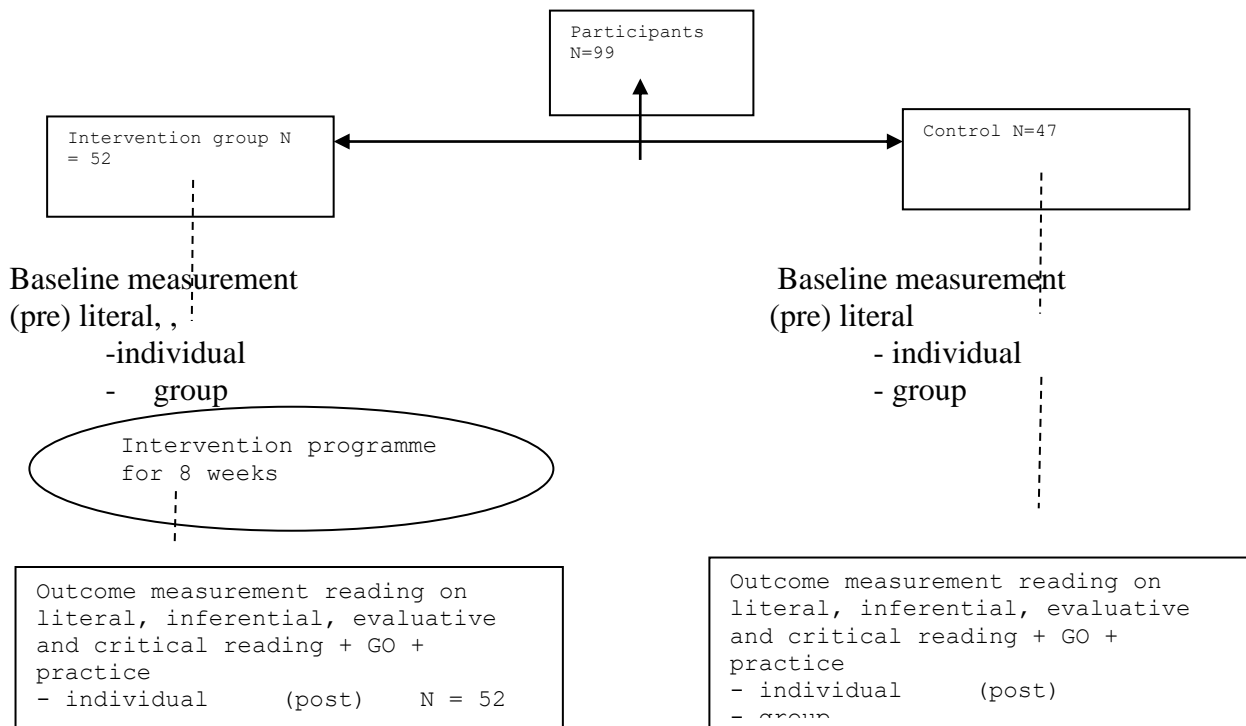
Figure 1: Design of the Study

Population of the Study

The population of this study comprised all the registered JS II students of Kaduna State for the year 2017/2018. There were four hundred and eleven (411) JSS in the state, with a total of one hundred and sixteen thousand, four hundred and twenty-eight (116,428) students from the twelve Education Zones. Table 1 shows the population of the study.

Table 1:
Population 0f the Study

	Zones	Number of JS II Students
1	Anchau	14, 845
2	Birnin Gwari	2, 843
3	Giwa	8, 924
4	Godogodo	5,535
5	Kachia	6,001
6	Kaduna	16, 509
7	Kafanchan	5, 938
8	Lere	10, 390
9	Rigachikun	9, 746
10	Sabon Tasha	14, 893
11	Zaria	16, 799
12	Zonkwa	4, 389
	Total	**116, 428**

Sample and Sampling Procedure

The sample size for this study was four (4) JSS II schools and ninety-nine (99) JSS II students from two zones of Kachia and Zonkwa respectively. The sampling of the four schools was based on intact reflection of the groups with similar characteristics. To ensure that each school was equally represented. Random sampling was employed so that every school has equal chance of being selected. The total number of JSS II students from the two zones of Kachia and Zonkwa was Ten thousand and six (10,006) students. Thus Kachia Zone = 6,001 and Zonkwa Zone = 4005 students. However, ten percent of the total number that is 99 students were used as subjects of the study. This is in line with Zagi and Iliya (2015) who state that 10% is an adequate sample for a population up to 5,000. More so, Glenn (2014) asserts that the sample depends on the purpose of the study, the population size and level of precision. Table 2 shows the number of sampled students.

Table 2:
Number of Sample JS II Students

Schools	Number Sampled
GSS (Jnr) Zonkwa	28
GSS (Jnr) Mazuga	30
GSS (Jnr) Wadon	22
GSS (Jnr) Kachia	19
Total	**99**

Research Instruments

The study employed six comprehension passages for data collection. The passages are based on the objectives and research questions formulated by the researcher. Pre-test weekly progress and post-test were administered to experimental and control groups. The reading texts were adapted from Nelson Functional English JSS II, 2013, New Concept English JSS II, 2012 and JSCE, 2008 (See Appendixes IA, IIA, IIIA . . . VIA). The comprehension passages were modified to be of interest to the students and were not too difficult for them to attempt. The passages were presented to the research supervisors and experts in the field for scrutiny and suitability (see appendix I for titles of the comprehension used in the study).

Results

Control Group Post-test Scores Analysis

The Control Group Post-test Scores were analysed using frequency and percent and the result of the analysis is presented in Table 3.

Table 3:
Control Group Post-test Scores Analysis

Level	Score	Lit.	%
Low	0-8	0	0
Medium	9-14	19	40.43
High	15-20	27	57.45
	Total	**46**	**97.87**

http://cudimac.unn.edu.ng/volume-10/

Table 3 presents the Control group Post-test scores in frequencies and percent. It also reveals that at posttest level no student scored low marks (0-8) in literal reading, 19 scored medium marks (15-20)

Experimental Group Post-test Scores Analysis

The Experimental Group Post-test Scores were analysed using frequency and percent and the result of the analysis is presented in Table 4.

Table 4:
Experimental Group Post-test Scores Analysis

Level	Score	Lit.	%
Low	0-8	0	0
Medium	9-14	7	13.46
High	15-20	45	86.54
	Total	**52**	**100**

Table 4 presents the experimental group Post-test scores in frequencies and percent, which indicates that at posttest level none of the students scored low marks in literal reading (0-8), 7 students scored medium marks (9-14) and 45 scored high marks (15-20).

Hypothesis

There is no significant difference in the effects of graphic organizers and conventional method on literal reading in English reading comprehension among JSS II students. This null hypothesis was analysed using inferential statistics of independent samples t-test. The result of the analysis is presented in Table 5.

Table 5:
Summary of Independent samples t-test on the effects of graphic organizers and conventional method on literal reading in English reading comprehension

Group	N	Mean	SD	Std. Error Mean	t	df	p
Control	47	15.16	2.427	.354	4.153	97	.000
Experimental	52	16.99	1.941	.269			
Total	**99**						

Table 5 is the Summary of means and standard deviations on the effects of graphic organizers and conventional method on literal reading in English reading comprehension. The mean literal reading score of the students taught reading comprehension using graphic organizers was (M=16.99, SD=1.941) and that of conventional method was (M=15.16, SD=2.427) with a mean difference of -1.827. The 95% confidence interval of the difference was between -2.699 and -0.954. This is supported by (97) =4.153, p=0.001, the null hypothesis which stated no significant difference was rejected. Therefore, there is a significant difference in the effects of graphic organizers and conventional method on literal reading in English reading comprehension among JSS II students.

Discussion of Findings

This study examined the effects of GOs on literal reading comprehension performance of JSS II students as ESL learners. The data analysis indicated that GOs strategy had significant effects on literal reading comprehension performance of students more than the conventional method.

The findings revealed that this study is in support of the use of GOs in facilitating literal reading comprehension of the ESL students. This finding is also in agreement with Slavin (2011) and Rawson's (2015) who claimed that graphic organizers either conceptual or cyclical as visual tools make reading comprehension effective, easy and fun for the students at any educational level than any other reading strategies especially in second language learning settings.

Conclusion and Suggestion

Based on the findings, it can be concluded that GOs strategy can be used as an alternative instructional strategy for ESL students' effective performance in literal reading comprehension across all levels of education. Furthermore, ESL teachers are recommended to employ GOs strategy in their classrooms, despite that, this study has some time and administrative restrictions which are its limitations. First, the subjects of this study were limited to a certain level of a particular school. To get more valid results, further studies are needed to investigate the effects of using GOs to develop reading comprehension at different levels of language proficiency and comparing students with different learning styles. In addition, investigating the students' and teachers' opinions of using GOs is recommended for better performance in reading comprehension.

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