



Effects of Pre-Reading Activities on Junior Secondary Students' Achievement in Inferential and critical Comprehension in Nassarawa Eggon Local Government Area, Nasarawa State, Nigeria

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ABSTRACT

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This study investigated the effects of Pre-Reading Activities on Junior Secondary Students' Achievement in terms of inferential and critical comprehension in Nassarawa Eggon Local Government Area (LGA) in Nasarawa State, Nigeria. Two objectives and two research questions were raised, while two hypotheses were formulated and tested at 0.05 level of significant. The study employed non-randomize pre-test, post-test quasi-experimental control group research design. The population of the study comprised of 2,467 Junior Secondary 11 students from all the 38 public secondary schools in the study area, with a sample of 100 participant from two intact classes. The experimental group consisted Of 55 students, while the control group consisted of 45 students. The study employed simple random sampling technique to select the schools that were used for the study. Reading Comprehension Achievement Test (RCAT) was used as the instrument for data collection. Descriptive and inferential statistics of Mean and standard deviation were employed to answer the research questions and the hypotheses, at 0.05 level of significance using Analysis of Covariance (ANCOVA). The findings revealed that the treatment group taught reading comprehension skills using pre-reading activities scored higher than the control group. There was a significant difference in the achievement mean scores of the treatment group against the control group. The study concluded that the implication of the findings showed that teachers of English language could use the pre-reading activities to help in improving students' achievement in other aspects of English language. It was recommended among others that teachers of English language should ensure the use of appropriate teaching strategies to activate students' prior knowledge to enhance their achievement in reading comprehension and interpretation of what they read.

INTRODUCTION

Reading is one of the requisite language skills utilized in teaching and learning English as Second language particularly across all academic subjects in Nigeria and worldwide. It serves as a unifying skill throughout the entire educational pursuit. Reading skills help students to acquire new vocabulary, learn about complex concepts, improve their writing skills, critical thinking and analytical skills. These skills enhance the students' problem-solving abilities, attainment of higher self-academic confidence and in different phases of endeavors.

Reading can be described an active process of being able to not only pronounce words in a written text but to fully understand and interpret its content meaningfully through interaction with the reader's prior knowledge, the information being read, and the purpose of reading (McLaughlin, 2012). Reading can also be defined as a complex conscious and unconscious mental process involving perception and thoughts, which enables the reader to identify printed symbols representing spoken language, the understanding of words and sentences joined together in a text to derive meaning. This process is referred to as reading comprehension which is the primary purpose of reading (Jiang, 2024). Thus, what a reader derives from a text is determined by the prior experience he/she has acquired about the new information being conveyed. But where the reader is unable to understand and interpret what is read, the integration of the textual and background knowledge become necessary. This implies that relevant adequate prior knowledge needs to be employed to enhance comprehension of the text.

The essence of any reading, is comprehension which is an essential activity that can help to improve students' achievement in all academics. Proficient reading abilities correlate strongly with learners' academic achievement across all subjects (Clark & Teravainen, 2017).

In spite of the importance of reading comprehension in academics and other spheres of human endeavors, students fail to comprehend what they read. It is worrisome to note that students' performance in reading is perennially poor. This has been attributed to inappropriate teaching methods or approaches among others. The approach(s) teachers use in teaching reading in Nigeria secondary schools, particularly in Nasarawa State, reveals continuous use of traditional (conventional) methodologies which do not meet the contemporary educational demands. The conventional method is more of teacher-centeredness and often minimizes learners' interactive learning opportunities. Researches have revealed the disturbing situation in their perennial poor academic achievement in reading comprehension especially in their internal and external examinations results in such as West African Examination Council (WAEC), National Examination Council (NECO), among others in English language examinations, particularly in reading comprehension sections. A summary of the WAEC results for 2015-2017 revealed that only 5.20%, 2.30% and 6.0% of the candidates were able to meet tertiary institutions admission requirements. Also, the junior secondary students have recorded consistently low scores in English language comprehension over the years which have also affected the students' chances for higher education. For instance, the students' performance in

the junior secondary certificate examination (JSCE) conducted by the state ministry of education from 2020-2024 showed that in 2020, 56%, of the students passed with credit and above, in 2021, 51% passed, in 2022, 48% passed, in 2023, 39% passed and in 2024, 53% passed. This performance is low considering the fact that most of the students could not get the requirement for admission into senior secondary school.

The persistent problem indicates the need to explore alternative instructional approaches that have the potentials to address the underlying factors contributing to the reading comprehension challenges. That is, innovative and learner-centered approaches such as pre-reading activities that provide individualized attention for learners and has the potential to not only reverse the poor achievement but also restored the diminishing confidence in reading should be explored. Pre-reading activities enables students activate their existing schema (pluralschemata/schemas) and establish contextual framework before reading new texts. Teachers of English language might apply activities such as brainstorming, story-telling, discussion, use of pictures, speed chatting, among others to enhance students' capacity to extract explicit information from texts and follow sequential fundamental components of the comprehension skills that support higher-order reading processes (Fisher & Frey, 2015).

Well-conceived pre-reading activities lay essential foundation for comprehension skills such as literal, inferential reading among others. Therefore, considering the students' poor achievement in reading comprehension and the potential of pre-reading activities in improving students' abilities in comprehension skills, it was necessary to carry out this study to examine its effects on JS11 students' achievement in reading comprehension in Nassarawa Eggon LGA in Nasarawa State, Nigeria.

Statement of the Problem

Students are supposed to read with a good level of comprehension so as to enable them excel in their academics and in other spheres of human endeavors. Despite the need, most secondary school students have enormous difficulties comprehending textual materials. The incapability of most students to read strategically has been a thing of great concern to parents, teachers and even students and other stakeholders in education. This has led to the persistent poor performance or outright failure in some cases in their internal and external examinations. The WAEC Chief Examiner's report (2019-2023) lamented over the poor performance of Nigerian students in English language and suggested the need to inculcate reading culture among secondary school learners.

The poor performance of students in English language and in academics has been attributed to the abysmally low proficiency in reading as indicated by WAEC Chief Examiners Report, 2019-2023). This could

be traced to poor teaching method as teachers of English language continue to use the conventional methods or inappropriate approaches beginning from junior secondary level which make it impossible for students to be imaginative in their thinking. This made many students to lack the creativity needed for effective comprehension (Ebibi & Muodumogu, 2019). The case is not different in Nassarawa Eggon LGA in particular and Nasarawa State in general. Thus, the problem under study could be stated in interrogative form as: What would be the effects of pre-reading activities on JS II students' achievement in reading comprehension in Nasarawa Eggon LG A, Nasarawa State, Nigeria.

Aim and Objectives of the Study

The aim of the study was to determine the effects of pre-reading activities on junior secondary students' achievement in inferential and critical comprehension in Nassarawa Eggon LGA, Nasarawa State, Nigeria. The specific objectives were to:

1. ascertain the effects of pre-reading activities on JS II students' achievement mean scores in answering inferential comprehension questions from a reading comprehension passage in the experimental and control groups.
2. determine the effects of pre-reading activities on JS II students' achievement mean scores in answering critical level questions from a reading comprehension passage.

Research Questions

The following research questions were posed to guide the study:

1. What are the pre-test and post-test achievement mean scores of JS II students in the experimental and control groups in inferential comprehension in Nassarawa Eggon LGA of Nasarawa State?
2. What are the pre-test and post-test achievement mean scores of the experimental and control groups in answering critical level questions from a reading comprehension passage in the experimental and control groups?

Hypotheses

The following null hypotheses were formulated and tested at 0.05 level of significance:

1. There is no significant difference between the post-test achievement mean scores of JS II students in the experimental and control groups in inferential comprehension in Nassarawa Eggon LGA of Nasarawa State.
2. There is no significant difference between the post-test achievement mean scores of JS II students in the

experimental and control groups in critical comprehension in Nassarawa Eggon LGA of Nasarawa State.

LITERATURE REVIEW

Reading is a process which involves interaction between the reader, the text and the author. It includes several interrelated aspects of language. In this process, the reader recognizes the words and decodes them, realizing the syntactic order of sentences then combine his or her prior knowledge to understand the semantic awareness of the text (Karakas, 2021). This leads to what is called reading comprehension. Reading comprehension in the other hand, can be described as a process of extracting information from text which involves use of prior knowledge, knowledge structure and search for meaning. Thus, reading abilities correlate with reading comprehension, and both go with academic achievement in language usage and other subject areas (Nguyen & Nguyen, 2023). There has been continuous low amount of exposure which makes reading in English as second language especially reading comprehension teaching and learning process more challenging to learners.

To improve this situation, learners need to be taught using effective teaching strategies such as pre-reading activities at the initial phase of reading process to activate their background knowledge, motivate and make them think critically when reading; before assigning any reading text (Lyons, 2017).

Application of Pre-Reading Activities in Reading Comprehension

Pre-reading activities refer to pedagogical technique that prepare and motivate learners to become more prepared for what they intend to read and anticipate the kind of comprehension skills including other language structure such as grammar used in the reading text. Some among the pre-reading activities include brainstorming, story-telling, pictures, discussion, speed chatting among others. For instance, using "brainstorming" as pre-reading activity to teach comprehension. The teacher asks the students to share ideas they know about the text to be read in English language or other accepted language before reading the assigned text to activate, motivate and enhance the students' background knowledge or relevant schemata/horizon to create expectation of the text. It also gives them the opportunity to work in groups before reading, while the teacher moves around in the classroom to supervise them.

It was based on this premise that the present study was carried out to determine the effects of pre-reading activities on students' achievement in reading comprehension specifically at the Junior level of secondary school JS11 students in Nassarawa Eggon LGA in Nasarawa state, Nigeria.

Theoretical Framework

The study is anchored on Schema theory propounded by Immanuel Kant in 1781 and rooted in cognitive information. The theory showed how learning, understanding and remembering of events, and meaning in human nature and prior knowledge are shaped and activated. The principle of the theory focuses on activation of prior or background knowledge as an active learning process which enhances learners' ability to understand what is read and interpreted and the meaning of the text efficiently. It also maintains that real understanding of a text is based on readers' background experience by relating the new information with already existing information stored in the memory. The theory also maintains that text in itself does not carry meaning but provides directions how to retrieve and construct meaning from previous experience to enhance and retain meaning.

The schema theory is related to the present study in the sense that pre-reading activities are based on learners' cognition to activate their schemata and enhance construction, comprehension and interpretation of a text meaningfully. The learners' prior knowledge can be activated by the teacher before assigning a text to be read to improve achievement.

METHODOLOGY

The study adopted the non-randomize pretest, post-test quasi-experimental control group research design. Quasi-experimental research is a design which exposes the actual testing if any by comparing two groups, where one of the groups is an experimental group and one is a control group. The population for the study comprised 2,467 Junior secondary II students from all 38 public secondary schools in the study area with sample consisted of 100 participants drawn from two intact classes. One intact class was designated as the experimental group, and the other the control group. The experimental group consisted of 55 students, while the control group comprised 45 students. Simple random sampling technique was used to draw the sample, specifically the "hat and draw" method. Reading Comprehension Achievement Test (RCAT) was used as the instrument for data collection. The instrument was divided into two sections: A and B. Section A elicited students' demographic data which included: school, name, class and class number. Section B on reading comprehension passage which comprised of 10 questions designed to assess students' reading comprehension skills that were targeted.

To ensure the face and content validity of the instrument, it was validated by three experts. Two of the experts were from English Education Unit of the Department of Arts Education and one of the experts was from Research, Measurement and Evaluation of the Department Educational Foundation both of the Faculty

of Arts Education, University of Jos. To establish the reliability of the instrument, a pilot study was conducted with Junior Secondary (JS11) students from a school within the study area, but different from the schools that were used in the main study who shared similar characteristics. The split-half method was used to determine the reliability of the Reading Comprehension Achievement Test (RCAT). The correlation between the two halves was calculated using the Pearson Product-moment correction coefficient (PPMC) method which yielded a reliability of 0.83. This indicated higher reliability.

The experimental group was guided using pre-reading activities such as brainstorming, storytelling, use of pictures, discussion and speed chatting to teach reading comprehension skills which included, inferential and critical reading comprehension skills for six weeks. During the treatment periods, the researcher guided the students to understand and interpret the inferential and critical skills on the title of the given reading comprehension passage.

The students in the treatment group were also instructed to share their insights to foster sense of satisfaction. But the treatment was withheld from the control group. The control group was taught the same reading comprehension passages using the conventional method for six weeks. After the period of

the treatment, a post-test was conducted on both experimental and the controls groups using the Reading Comprehension Achievement Test. The test items were the same with the pre-test. The researcher ensured close supervision to guard against instances of internal invalidity.

The research questions raised were answered using the descriptive and inferential statistics which were employed using Statistical Package for the Service Solution (SPSS) version 27.0. The research questions were answered using mean and standard deviation, while hypotheses were tested at a significance level of 0.05 using Analysis of Covariance (ANCOVA). The use of ANCOVA was to account for initial differences between the experimental and control groups.

RESULTS AND DISCUSSIONS

Research Question One

What are the pre-test and post-test achievement mean scores of JS II students in the experimental and control groups in inferential comprehension in Nassarawa Eggon Local Government Area of Nasarawa State? The result is presented in table 1.

Table 1: Pre-Test and Post-Test Inferential Comprehension Achievement Mean Scores of the Experimental and Control Groups

Group		N	$\bar{X}$	SD	Mean gain	x-diff
Experimental	Pre-test	55	4.07	2.58		
	Post-test	55	15.74	2.42	11.67	
Control	Pre-test	45	2.75	2.42		11.63
	Post-test	45	4.11	1.86	1.36	

The results of the analysis from Table 1 revealed that the experimental group had a pre-test mean score of $\bar{X} = 4.07$, SD = 2.58 and a post-test mean score of $\bar{X} = 15.74$, SD = 2.42 with mean gain of 11.67 while the control group had a pre-test mean score of $\bar{X} = 2.75$, SD = 2.42 and a post-test mean score of $\bar{X} = 4.11$, SD = 1.86 with mean gain of 1.36. The results indicate a mean difference between the post-test mean scores of the experimental and control group of 11.63 in favour of the experimental group. This implies that pre-reading

activities help to improve students' achievement in inferential comprehension more than conventional method.

Research Question Two

What is the pre-test and post-test achievement mean scores of JS II students in the experimental and control groups in critical comprehension in Nassarawa Eggon Local Government Area of Nasarawa State?

Table 2: Pre-Test and Post-Test Critical Comprehension Achievement Mean Scores of the Experimental and Control Groups.

Group		N	$\bar{X}$	SD	Mean gain	x-diff
Experimental	Pre-test	55	2.78	2.20		
	Post-test	55	15.30	1.85	12.52	7.57
Control	Pre-test	45	2.66	1.14		
	Post-test	45	7.73	2.50	5.07	

The results of the analysis from table 2 reveals that the experimental group had a pre-test mean scores of $\bar{X} = 2.78$, SD = 2.20 and a post-test mean scores of $\bar{X} =$

15.30, SD = 1.85 with mean gain of 12.52. While the control group had a pre-test mean scores of $\bar{X} = 2.66$, SD = 1.14 and a post-test mean score of $\bar{X} = 7.73$, SD

= 2.50 with mean gain of 5.07. The results indicate a mean difference of ($\bar{X}$ -diff) = 7.57 in favour of the experimental group. This implies that pre-reading activities help to improve students' achievement in critical comprehension more than conventional method.

Testing Hypotheses

Hypothesis One:

There is no significant difference between the post-test achievement mean scores of JS II students in the experimental and control groups in inferential comprehension in Nasarawa Eggon L.G.A. of Nasarawa State. The result is presented in table 3.

Table 3: Summary of ANCOVA of the Post-Test inferential Comprehension Achievement Mean Scores between the Experimental and Control Groups Sources

Sources	Type II sum of Square	Df	Mean square	F	Sig.	Partial Eta squared
Corrected model	2365.47 ^a	2	1182.737	81.951	.000	.605
Intercept	3676.228	1	3676.228	254.724	.000	.704
Pre-inferential Group	85.458	1	85.548	6.921	.017	.052
Error	2233.038	1	2233.038	154.726	.000	.591
Total	1544.245	97	14.432			
Corrected total	12481.000	100				
	3909.78	99				

a. R squared = 605 (Adjusted R squared) = 598

Analysis of covariance was conducted to determine if significant differences would exist between the post-test achievement mean scores of JS II students in inferential comprehension of the experimental and control groups. Table 9 revealed that F (97) 154.726 p<0.000 partial η^2 = .591. Since the p-value of 0.000 is less than 0.05 level of significance, with an effect size of 59.1%, the null hypothesis was rejected indicating that there is a significant effect of pre-reading activities on student' achievement in inferential comprehension. The results further showed an adjusted R Squared value of .598 which means that 59.8% of the variation in the dependent variable which is achievement in inferential comprehension of JS II students is explained by the variation in the treatment which is pre-reading activities;

while the remaining 40.2 is due to other factors not included in this study. It can be concluded that there is a significant difference between the achievement of students in the experimental and control groups after exposure of the two groups to pre-reading activities and conventional method in favour of the experimental group.

Hypothesis Two:

There is no significant difference between the post-test achievement mean scores of JS II students in the experimental and control groups in critical comprehension in Nasarawa Eggon Local Government Area of Nasarawa State.

Table 4: Summary of ANCOVA of the Post-Test Critical Comprehension Achievement Mean Scores between the Experimental and Control Groups Sources

Sources	Type II sum of Square	Df	Mean square	F	Sig.	Partial Eta squared
Corrected model	3660.320 ^a	2	1830.160	145.127	.000	.731
Intercept	3921.321	1	3921.321	310.950	.000	.744
Pre-critical Group	5.250	1	5.250	.416	.520	.604
Error	3279.128	1	3279.128	260.026	.000	.708
Total	1349.253	97	12.611			
Corrected total	12146.00	100				
	5009.673	99				

a. R Squared = 731 (Adjusted R Squared = 7.26)

Analysis of covariance was conducted to determine if a significant difference would exist in the post-test achievement mean scores of JS II students in the experimental and control groups. Table 3 showed that $F(97) = 260.026$, $p < 0.000$ partial $\eta^2 = .708$. Since the p -value of 0.000 is less than 0.05 level of significance with an effect size of 70.8 the null hypothesis was rejected; indicating that there is a significant effect of pre-reading activities on students' achievement in critical comprehension. The result further showed an adjusted R Squared value of .726 which means that 72.6% of the variation in the dependent variable which is achievement in critical comprehension is explained by the variation in the treatment which is pre-reading activities, while the remaining 27.4% is due to other factors not included in this study. This indicated that pre-reading activities significantly improved JS II students' achievement in critical comprehension more than conventional method.

DISCUSSION

This study was on effects of pre-reading activities on Junior secondary 11 students' achievement in inferential and critical reading comprehension in Nassarawa Eggon Local Government Area in Nasarawa State, Nigeria. Findings from research question one indicated that students who were exposed to pre-reading activities achieved higher than those that were taught using conventional method. Findings from research question one revealed that students that were taught critical comprehension using pre-reading activities had a post-test mean score of 15.30 higher than that of the control group of 7.73. The results of the corresponding hypothesis revealed that there is a significance in the achievement of students between the experimental and control group in favor of the experimental group. This finding in accordance with the findings by Nguyen and Nguyen (2023) who found that pre-reading activities help in improving students' achievement in critical comprehension more than the conventional method. The implication of the finding is that using pre-reading activities help to improve achievement in critical comprehension. Therefore, English language teachers need to always use pre-reading activities such as brainstorming, story-telling, among others in improving students' achievement in reading comprehension and other aspects of English language in particular. Findings from research question two showed that students who were taught critical comprehension using pre-reading activities had a mean score of 15.20 higher than the students that were taught using conventional method who had mean score of 5.20. The results of the corresponding hypothesis revealed that there is a significance difference in the achievement mean scores of students who were taught critical comprehension using pre-reading activities than those that were taught using conventional method. This agrees with the findings of Lyons (2016) who found that pre-reading

activities is an instructional strategy that help to improve achievement of students better than the conventional method. The implication of this finding is that teachers of English language need to use the effective strategies to help students improve their achievement in critical comprehension and English language in general.

CONCLUSION AND RECOMMENDATIONS

The study concluded that pre-reading activities improved students' achievement in answering reading comprehension skills than the conventional method of teaching English language reading comprehension. Therefore, teachers of English language should use pre-reading activities as strategies instructional approaches in the teaching and learning to students since they have proven to increase students' achievement in reading comprehension. The study recommended that:

1. The junior secondary school curriculum developers should review the curriculum to incorporate pre-reading activity strategy. This will help to enhance and improve students' achievement in teaching and learning of English language especially reading comprehension.
2. Teachers should ensure that relevant pre-reading activities are introduced to activate and motivate students' background before reading a new text.
3. Seminars and workshops should be organized by education authorizes to train teachers of English language on how to use the modern strategies in the classrooms instructions to improve students' achievement in reading comprehension task.

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