UNIVERSITY OF JOS

JOURNAL

OF

ARTS EDUCATION

(UJJAE)

University of Jos Journal of Arts Education(UJJAE)

EDITORIAL BOARD

EFFECTS OF BACKGROUND KNOWLEDGE ACTIVATION ON JUNIOR SECONDARY STUDENTS' ACHIEVEMENT IN READING COMPREHENSION IN JOS NORTH LOCAL GOVERNMENT AREA OF PLATEAU STATE

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Abstract

Reading comprehension is a foundational skill that underpins success in different facets of academic and social life of leaner(s). Despite its significance, empirical evidences have shown poor students' achievement in reading comprehension in and outside school. This paper investigated the Effects of Background Knowledge Activation on Junior Secondary School Students' Ability to Answer Three Types of Reading Comprehension Questions in Jos North Local Government Area of Plateau State, Nigeria. Quasi-experimental design was used to ascertain the achievements of ninety (90) students who were selected as sample from two schools out of the 21 public schools in the study area. Data were collected using the Model of Answering Three Types of Reading Comprehension Questions Achievement Test (MATTRECQAT). The research questions were answered and analysed using analysis of variance (ANOVA) while independent sample t-test was used to test the hypotheses at 0.05 level of significance so as to compare the achievement of students in the experimental group and those in the control group. The results revealed a statistically significant difference in the achievement of the two groups, with students in the experimental group obtaining significantly higher scores than those in the experimental group. The findings showed that background knowledge activation is critical and effective for teaching reading comprehension in secondary schools. The researchers recommended that the teachers should endeavour to make use of the various prior knowledge activation strategies to facilitate learning and serious attention should be given to the higher levels of comprehension by both teachers and learners. This is because developing only the literal comprehension ability of students actually does not lead to deep learning.

Key Words: Background Knowledge activation; Reading Comprehension, Literal, Inferential and Critical questions

BACKGROUND TO THE STUDY

English language has remained the most prominent means of daily communication in Nigeria due to the linguistic role it plays in the country. It is the language of government and of instruction at all levels of education in Nigeria. The importance of English language in Nigeria cannot be overstated. It serves as a unifying language that facilitates education and enables access to global knowledge and resources. Learning to read in English in Nigeria is the aspiration of every learner, since it is one of the most important literacy skills one can acquire to have access to knowledge.

Reading is one of the four language skills. It is an active mental process through which *the reader gets into the author's mind and* comprehends his expressed and unexpressed views on a subject which is presented in form of printed language. In other words, the reader is involved in both mental and emotional interaction with the writer's ideas and processes these ideas in the light of his past and present experiences. Johnson (2016) defined reading as the ability to practice the use of text to create meaning. The essence of reading is to understand what the writer meant in the text. Comprehension refers to the ability to understand and make meaning from written or spoken language. It involves not only understanding the literal meaning of the words, but also being able to infer information, make connections, and draw conclusions based on the text. In reading comprehension, individuals are able to understand the main ideas, supporting details, and the overall message or purpose of a text. They can also analyse and interpret the author's tone, point of view, and use of literary devices. Comprehension skills also involve being able to summarize information, make predictions, and evaluate the validity and reliability of the text.

Background knowledge activation refers to the process of activating prior knowledge or experiences that are relevant to a particular topic or task. In the context of comprehension questions, background knowledge activation involves accessing and utilizing existing knowledge to understand and answer comprehension questions effectively. To help a reader have better understanding of a given passage, background knowledge activation is very important in order to grasp meaning of what is read. Mansor, Zuldin and Rahim (2015) submitted that background

knowledge activation has proven to be an effective strategy for learning both in the sciences and humanities.

Comprehension of a text represents one of the most important aspects in learning as it plays an important role in the process of acquisition, sharing and construction of knowledge. Accessing and building background knowledge provides critical support for reading comprehension (Fathollah, 2013). It provides readers with the necessary information that makes texts more comprehensible. Background knowledge is even more important in second language reading. This is because background knowledge and language proficiency interact during second language reading. Thus, it is easier for those who have background knowledge to overcome comprehension difficulties due to language proficiency limitation (Chia, 2018).

According to schema theory, prior knowledge provides a schema, a framework or structure that helps thinking (Allington, 2010). It deals with reading comprehension as an interactive process between readers' prior knowledge and the text being read. A reader with a rich background comprehends better than the one who has a poor background (AbdulMohsen, 2012). Thus, background knowledge is essential and should be activated to help readers comprehend the text better. According to Sharmini (2016), Naseer Omer (2016), and Chia (2013), lack of background knowledge have been the main problem among English as a second language (ESL) learners of primary school and junior secondary school students that hamper reading comprehension. Thus, students are having difficulties because the demands of comprehension have increased as they transit in the learning process from primary school to lower secondary.

STATEMENT OF THE PROBLEM

Reading is one of the vital language skills that a second language learner must acquire to become an effective user of the language. Reading comprehension on the other hand is an important skill for academic success as it is necessary for understanding textbooks, lectures, and other educational materials. It is also important for everyday life as it enables individuals to understand instructions, make

informed decisions, and engage in meaningful conversations.

There have been consistent reports of poor achievement in English language among Nigerian students over the years. It is important therefore, to find out effective strategies that can best enhance the teaching and learning of English as a second language in Nigeria. Previous reports from Chief Examiners of West African Examination Council (WAEC) and National Examination Council (NECO) 2021 revealed that 73% and 68% of students performed poorly in answering comprehension questions in WAEC and NECO respectively. The current study therefore, is aimed at helping students become good at comprehending and answering literal, inferential and critical comprehension questions. It would also help students think on a higher level and read knowing they are not merely going to read speedily but also to find out underlying meaning of what the author intends them to find out.

The researchers therefore, undertook the study to examine the effects of background knowledge activation on junior secondary school students' achievement in reading comprehension in Jos North Local Government Area of Plateau State, Nigeria.

AIM AND OBJECTIVES OF THE STUDY

The purpose of the study was to investigate the effects of background knowledge activation on junior secondary school students' achievement in reading comprehension in Jos North Local Government Area of Plateau State, Nigeria. Specifically, the study sought to:

1. determine the extent to which background knowledge activation would assist JSS students to answer literal questions in a given text.
2. examine the extent to which background knowledge activation would enhance JSS students' ability to answer inferential questions in a given text.
3. find out the extent to which background knowledge activation would improve JSS1 students' ability to answer critical questions in a given text.

RESEARCH QUESTIONS

The following research questions guided the study:

1. To what extent will background knowledge activation help JSS students in answering literal comprehension questions?
2. How will background knowledge activation help JSS students answer inferential comprehension questions?
3. To what extent will background knowledge activation help JSS students to answer critical comprehension questions?

HYPOTHESES

To guide the study, the following hypotheses were formulated and tested at 0.5 level of significance:

1. There is no significant difference in the mean achievement scores of JSS students' background knowledge activation and their ability to answer literal comprehension questions.
2. There is no significant difference in the mean achievement scores of JSS students' background knowledge activation and their ability to answer inferential comprehension questions.
3. There is no significant difference in the mean achievement scores of JSS students' background knowledge activation and their ability to answer critical comprehension questions.

THEORETICAL FRAMEWORK

The study was hinged on the schema theory of language learning. The theory was initially proposed by a psychologist named Frederic Bartlett in the 1930s. However, it was further developed and popularized by two cognitive psychologists known as Jean Piaget and Richard C. Anderson in the 1970s. Piaget's work focused on the development of schema in children while Anderson expanded the work to include adults learning and comprehension.

Schema theory is a cognitive theory that explains how people organize and interpret information in their minds. It suggests that individuals have mental frameworks called schema, which are organized structures of knowledge, beliefs, and expectations about specific concepts or situations.

These schema are developed through prior experiences, knowledge, and cultural influences. They act as mental shortcuts that help individuals process and make sense of new information quickly. Schema also play crucial roles in guiding attention, interpretation, memory, and problem-solving. According to schema theory, when individuals encounter new information or situations, they activate relevant schemas from their existing knowledge base. These activated schemas then influence the way individuals perceive and interpret the new information. Schemas also help fill gaps in understanding by making assumptions and predictions based on past experiences. For example, if someone has a schema for a "restaurant," it includes expectations about the layout, menu, and typical behaviors associated with dining out. When they enter a new restaurant, their schema helps them quickly understand and navigate the environment based on their prior knowledge. On the whole, schema theory emphasizes the role of pre-existing knowledge and expectations in shaping cognitive processes and understanding. It is widely applied in various fields such as education, psychology, and communication to explain how individuals make sense of the world around them.

RESEARCH DESIGN

The research design used for the study was the pretest-posttest quasi-experimental design. The researchers precisely adopted the non-equivalent control group in administering the pretest and posttest to both the control and experimental groups. The design was chosen on the basis that it best suits a study where intact classes are involved.

POPULATION AND SAMPLE OF THE STUDY
Population

The population for this study comprised all junior secondary one students in public schools in Jos North Local Government Area of Plateau State, Nigeria. There are 21 public junior secondary schools in Jos North Local Government Area (SOURCE: Education Directorate Office, Jos North Local Government Area, 2016). The schools are all located in the urban area. The reasons for choosing this class is to

'catch them young', to help them become grounded in answering comprehension questions effectively so that they will not find it difficult as they advance in their education careers. Another reason is to help them apply their prior knowledge in understanding comprehension passages and answer comprehension questions without difficulty.

Sample Size

A sample of two primary schools in Jos North Local Government Area were selected. The two schools coincidentally had same numbers of 45 male and female students each in the selected classes making a total of 90 students.

Table 1: Distribution of Sample of Students that participated in the study

S/n	School	Sample
1	School A	45
2	School B	45
	Total	**90**

SAMPLING TECHNIQUE

Two sampling techniques were adopted for this study. Simple random sampling technique was used to select the two schools while purposive sampling technique was employed in the selection of the classes for the control and the experimental groups.

INSTRUMENTS FOR DATA COLLECTION

The instrument for data collection was the Model of Answering Three Types of Reading Comprehension Questions Achievement Test (MATTRECQAT). The instrument was a self-developed comprehension passage with follow up questions that tested the students' abilities in answering literal, inferential and critical questions.

Description of Instrument

The Model of Answering Three Types of Reading Comprehension Questions Achievement Test (MATTRECQAT) were expository passages. Two essay texts were developed, one on the "Importance of Civilian Rule" and the other on "Impact of Corruption on Nation Building". The choice for expository passage was based on the fact that it presents facts, evidences, or logical explanations about a topic of discussion in a clear and concise manner which is best in testing the level of deep thinking of learners. The texts were used for the administration of the treatment at the pretest and posttest respectively. One passage was used for the study. The passage was scored over 100%; 30% was allotted to literal answers, 35% for inferential answers and 35% for critical answers.

Procedure for Instrument Development

The first procedure involved in the study was the researchers' decision to determine the purpose of the test which was to test the abilities of JSS students in answering the three types of comprehension questions. The second stage was the outlining of the content areas to be covered and the instructional objectives as stated in the English language curriculum. The content areas included the essay passage on the "Impact of Corruption on Nation Building". The passage was followed by comprehension questions testing the students' abilities to answer literal, inferential and critical questions.

VALIDITY AND RELIABILITY OF THE INSTRUMENT

Validity

Test validity simply refers to the extent to which a research instrument or test or assessment measures what it is intended to measure (Edgar, 2023). The validity of MATTRECQAT was established through judgments from four experts. Two experts in English Education from the Department of Arts Education, University of Jos and the other two in Research, Measurement and Evaluation from the Department of Educational Foundations, University of Jos. The experts were given the instrument, the evaluation guide alongside the objectives, research questions and the hypotheses

the study. This was to guide the experts to ensure content coverage which the research claimed to cover, appropriateness, comprehensiveness, clarity, adequacy and relevance of MATTRECQAT.

Reliability

Reliability refers to the consistency, suitability and dependability of the result obtained from a study. Edgar (2023) referred to reliability as suitability of research instrument or findings over times and across different contexts. To ascertain the reliability of MATTRECQAT, the instruments were administered during a pilot study in a public school in Jos East Local Government of Plateau State to establish the internal consistency coefficient and also establish the homogeneity of the items in the instrument.

PROCEDURE FOR DATA COLLECTION

Two research assistants, one each in the two schools were trained and used for the purpose of administering the instrument under the supervision of the researchers. The research assistants all have B. A. Ed (English) Education and are teaching English language in the schools used for the study.

Administration of Pre-test

The pre-test was administered in the first week of the research exercise. The researchers first sought the consent of the principals of the two schools involved in the study through introductory letters. MATTRECQAT which was the expository essay on "Impact of Corruption on Nation Building" was administered to both the control and experimental groups before the treatment.

Administration of Post-test

The post-test was administered to both the control and experimental groups after the completion of the six weeks treatment.

METHOD OF DATA ANALYSIS

The research questions for the study were answered and analysed using the descriptive statistical tool known as analysis of variance (ANOVA) while the hypotheses were tested using the t-test of independent samples.

RESULT

Research Question 1: To what extent will background knowledge activation help JSS One students in answering literal comprehension questions?

Table 1: Pretest posttest mean achievement score in literal comprehension questions

Group	N	Mean		Stand..Dev		t-cal	Sig	Df	P
		Pre test	Post test	Pre Test	Post test	2.4	0.04	88	0.05
Exp.	45	10.3	25.7	2.1	2.73				
Control	45	7.3	9.5	1.6	1.93				

The result in table 1 shows that the pretest mean achievement score and standard deviation of the experimental group are 10.3 and 2.1 and the control group had pretest mean score and standard deviation of 7.3 and 1.6 as against the scores of the two groups in the posttest where the experimental group had a mean score and standard deviation of 25.7 and 2.73 while the control group had a mean score and standard deviation of 9.5 and 1.93.

Hypothesis 1: There is no significant difference in the mean achievement score of JSS I students' background knowledge activation and their ability to answer literal comprehension questions.

Table 1 shows that p-value of 0.04 is less than the p-value of 0.05. The null hypothesis of no significance was rejected at 0.05 alpha level. This implies that there is a significant difference between the mean achievement scores of JSS I students' background knowledge activation and their literal comprehension.

Research Question 2: How will background knowledge activation help JSS one students in answering inferential comprehension questions?

Table 2: Pretest posttest mean achievement score in inferential comprehension questions

Group	N	Mean		Stand. Dev.		t-cal	Sig	Df	P
		Pre test	Post test	Pre test	Post test	3.9	0.03	88	0.05
Experimental	45	6.9	86.8	2. 6	6. 9				
Control	45	13.1	12.5	4. 9	4. 6				

The result in table 2 shows that the pretest mean achievement score and standard deviation of the experimental group was 6.9 and 2.6 and the control group had pretest mean score and standard deviation of 13.1 and 4.9 as against the scores of the two groups in the posttest where the experimental group had a mean score and standard deviation of 86.8 and 6.9 while the control group had a mean score and standard deviation of 12.5 and 4. 6

Hypothesis 2: There is no significant difference in the mean achievement score of JSS I students' background knowledge activation and their ability to answer inferential comprehension questions.

Table 2 shows that p-value of 0.03 is less than the p-value of 0.05. The null hypothesis of no significance was rejected at 0.05 alpha level. This implies that there is a significant difference between the mean achievement scores of JSS I students' background knowledge activation and their inferential comprehension. Therefore, the researchers fail to accept the null hypothesis.

Research Question 3: To what extent will background knowledge activation help JSS1 students in answering critical questions?

Table 3: Pretest posttest mean achievement score in critical comprehension questions

Group	N	Mean		Standard Dev.		t-cal	Sig	df	P
		Pretest	Posttest	Pretest	Posttest	2.9	0.0 2	88	0.05
Experimental	4 5	10.8	34.9	3.01	8.7				
Control	4 5	11.2	18.4	2.09	5. 02				

The result in table 2 shows that the pretest mean achievement score and standard deviation of the experimental group was 10.8 and 3.01 and the control group had a pretest mean score and standard deviation of =11.2 and 2.09 . as against the scores of the two groups in the posttest where the experimental group had a mean score and standard deviation of 34. 9 and 8.7 while the control group had a mean score and standard deviation of 18.4 and 5.02

Hypothesis 3: There is no significant difference in the mean achievement score of JSS I students' background knowledge activation and their ability to answer critical comprehension questions.

Table 3 shows that p-value of 0.02 is less than the p-value of 0.05. The null hypothesis of no significance was rejected at 0.05 alpha level. This implies that there is a significant difference between the mean achievement scores of JSS I students' background knowledge activation and their critical comprehension.

SUMMARY OF FINDINGS

The findings of this study showed that background knowledge activation has effects on the JSS1 achievement in answering the three types of reading comprehension questions which are literal, inferential and critical questions.

DISCUSSION OF FINDINGS

The result in table 1 indicates that the pretest mean score of the experimental and control groups are 10.3 and 7.3 and after the intervention programme on the experimental group, the result of the experimental group improved tremendously as shown in table 1 as 25.7. This shows more than 50% increase in the achievement of the experimental group. Meaning, background knowledge activation has effects on JSS1 students' ability to answer literal comprehension questions. This finding is consistent with the findings of many related studies such as Rias & Zaman (2013); Mahmood, Nikoo and Bonyadi (2013), and Mansouri (2014).

The result in table 2 indicates that the pretest mean score of the experimental and control groups are 6.9 and 13.1 and after the intervention programme on the experimental group, the result of the experimental group improved tremendously as shown in table 2 as 86.8. This shows more than 90% increase in the achievement of the experimental group. Meaning, background knowledge activation has effects on JSS1 students' ability to answer inferential comprehension questions. This findings is consistent with the findings of other related studies such as Ellis (2019) and Barati (2011).

The result in table 3 indicates that the pretest mean score of the experimental and control groups are 10.8 and 11.2 and after the intervention programme on the experimental group, the result of the experimental group improved tremendously as shown in table 3 as 34.9. This shows more than 60% increase in the achievement of the experimental group. Meaning, background knowledge activation has effects on JSS1 students' ability to answer critical comprehension questions. This finding is consistent with the findings of other related studies such as Al-Jahwari and Al-Humadi (2015), Jonson (2016) and Mansor et' al (2015).

CONCLUSION

Based on the findings of this research, it was concluded that background knowledge activation has significant effects on the ability of students to answer the three types of reading comprehension questions. Therefore, teachers of English as a second language should always relate the contents of their lessons to the learners' prior experience since knowledge activation has consistently proven to be effective

in learning processes.

RECOMMENDATIONS

The following recommendations are given based on the findings of this research:

1. The teachers should endeavour to make use of the various prior knowledge activation strategies to facilitate learning. They should understand that even though it might take more time to prepare and actually activate students' prior knowledge, the benefits of doing so are enormous.

2. Serious attention should be given to the higher levels of comprehension by both teachers and learners. This is because developing only the literal comprehension ability of students actually does not lead to deep learning.

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