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## EFFECT OF KNOW-WHAT-LEARN STRATEGY ON SENIOR SECONDARY SCHOOL STUDENTS' ACADEMIC ACHIEVEMENT IN READING COMPREHENSION

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### ABSTRACT

This study investigated the effect of Know-What-Learn (KWL) on senior secondary school students' academic achievement in reading comprehension. The study adopted a quasi-experimental design – specifically a pretest posttest non-equivalent control group design. Two research questions and one hypothesis guided the study. The sample was made up of 80 students. The instruments for this study were 25 items multiple-choice reading comprehension achievement test. Mean and standard deviation were used to answer the three research questions while ANCOVA was used to test the hypothesis at  $p < 0.05$ . The result revealed that students taught using KWL had a higher academic achievement gain score than those taught using lecture method. Based on the findings, some recommendations were made which include that English language teachers should be trained and versed on how best to develop and use KWL strategy so as to achieve their objectives of enhancing academic achievement in Reading comprehension.

### INTRODUCTION

Reading comprehension can be seen as the process through which the recognized words are transformed into a meaningful idea (Adeniyi, 2002). It is a highly interactive process that takes place between a reader and a text. Reading comprehension is an intentional, active, interactive process that occurs before, during and after a person reads a particular piece of writing. Individual learner/reader will bring different skills and experiences to these interactions. These include language skills, cognitive resources and world knowledge. The act of reading occurs within a particular socio-cultural and emotional context. This includes the readers' cultural background, their previous motivation, their view of themselves as readers, the purpose of reading the text, the cultural value placed on reading and the reading environments the reader experiences. These variables may determine comprehension in reading.

Comprehension, which is a "creative, multifaceted process" is dependent upon four language skills: phonology, syntax, semantics, and pragmatics (Tompkins, 2011:45). Proficient reading depends on the ability to recognize words quickly and effortlessly (Keerian, Betjamann & Olsos, 2007). Comprehension is highly interactive, such that readers use variety of skill and processes in text reading. These processes are complex and consist of multiple components. Research has shown that comprehension involve decoding, fluency, vocabulary knowledge, knowledge of the ways text are organized, knowledge of the words and strategies for fostering and monitoring and comprehension ( Mc Grew & Wendling, 2010 & Middleton, 2011). It is also determined by an individual's cognitive development, which is the construction of thought processes.

Poor skills in reading comprehension obviously affect a student's success in school. Academic progress depends on understanding, analyzing and applying the information gathered through reading. However, it goes much further than expected. Poor comprehension skills have been linked to poverty and crime (Primary National Strategy for Literacy and Mathematics, 2014). Reading comprehension empowers learners to take individual as well as collective action in various contexts of their everyday life, such as household, workplace and community. Also reading comprehension could contribute to broader socio-economic processes of empowerment in modern society as it is fundamental to informed decision making, personal empowerment, active and passive participation in local and global social community.

Reading comprehension is considered as a fundamental for successful academic endeavour as students need to read and comprehend in any subject in order to excel. Yet, in Nigeria many scholars observed that this aspect of language learning is

highly neglected and may have been one of the major reasons for students' poor academic achievement in secondary schools (Adeyimi, 2008; Agwamba, 2014). According to West Africa Examination Council State Committee (2016) statistics of result performance May/June West African Senior School Certificate Examination (WASSCE) for Nigeria, the percentage of number of students that have five credit passes and above including English Language and Mathematics from the year 2012 to 2015 were 37.6%, 36.57%, 31.00%, 37.58 for 2012, 2013, 2014 & 2015 respectively. This shows a decline in students' performance.

The situation is that even among the senior secondary school students there are high levels of poor literacy yet the bases of literacy is reading comprehension (Nwigwe and Izuagba, 2011). This may have resulted in poor performance of students in West Africa School Certificate Examination (WASCE). The Federal and some State Governments have been providing funds for continuous teacher education and provisions of instructional materials for schools with the sole aim of improving the quality of education but the results of the past WASSCE have indicated that these governmental efforts are not yielding the expected dividends. The observed poor performance of students may be attributed to a number of factors, one of which is the use of poor and ineffective lecture method in teaching. Confirming the interrelationship between methods used in teaching and students' academic achievement. Nwigwe and Izuagba (2011:15) assert that:

Method used in teaching can stimulate interest and zeal to learn or kill interest. As a matter of fact, what a child learns depends not only on what he is thought, but how he is taught, though other variables like his/her developmental levels interest and experience are crucial. Method used in teaching is very crucial. This is why the teacher's effectiveness, rest on his skillfulness and creativity as well as selecting apt methods of presenting what he/she teaches.

Also, studies have indicated that teachers in secondary schools predominately use lecture method in lesson delivery (Onukaogu, 2003; Izuagba, 2011). Lecture method allows a great deal of information to be passed on. It is advantageous in handling large classes. In spite of this advantage, the lecture method does not stimulate students' innovativeness, critical thinking, inquiry and scientific attitudes. It encourages students to memorize facts which are often easily forgotten (Mbakwem, 2005). In addition, in lecture method, teaching is always emphasized rather than learning for mastery. It uses mechanical learning process where the teacher is the custodian of knowledge and information giver.

In the light of this general poor performance of students in English language in public examinations such as Senior Secondary Certificate Examination, it could be that appropriate teaching strategies that will make students proficient with the skills for reading comprehension have not yet been fully adopted in teaching in secondary school. This could perhaps be one of the reasons for students' poor performance as success in examination is determined by the extent the student could interpret meaning from the subjects. There is thus, an agitation for a paradigm shift where learning is emphasized and this has given birth to constructivism. Constructivism is the brain child of scholars like; Piaget (1950), Vygotsky (1978), Ausbel (1963) and Brunner (1975). Vygotsky posits that learning is an active, social process in which student constructs new ideas/knowledge based on his/her current knowledge. Constructivism is a view of learning based on the belief that knowledge is not given by the teacher rather it is constructed by learners through an active and collaborative process.

In other words learners are the builders, creators of meaning and knowledge and that knowledge is socially constructed. For the constructivist, knowledge is not transmitted from an expert or teacher to a passive recipient, the learner. Rather learning results from a cognitive activity of meaning–construction. The learner is engaged in the construction of mental representations of the material in which he or she is exposed to, and to make sense from it. Knowledge therefore results from the activity taken by the learner usually in a problem–solving activity, and also from reflections on those actions. The main feature of constructivist theory is that it focuses on the learner. The learners take responsibility for their learning, they become architects of their learning process in an environment that is learner– centered (Okudo, 2013). The teacher must mediate between learner's current and emergent understanding. He or she becomes a guide, a coach, and a facilitator.

Arguably, Ifegbo (2012) asserts that constructive approach and social constructive approach emphasize child's own construction of knowledge by understanding alone or in collaboration with others respectively. Know-what-learn (KWL) teaching strategy underline the core principles of constructivism.

Constructivist theorists posit that knowledge is not given but constructed by the learner. Hence, it is through interaction with people, environment and relating concepts to what the learners know that they experience things, reflect on their experience and by so doing they construct knowledge. KWL strategy is one of the teaching and learning strategies used mainly for information text. Ogle (1986) developed the strategy (access what I know, determine what I want to find out, recalling what I did learn) which combined several other elements of approaches. KWL instructional strategy adopts a three column format, requires students first to list what they already know about a topic (calling attention to prior knowledge). Second, to write what they would like to know about a topic (tapping students' interest and providing purpose for reading, and the third, after reading and discussion, to list what they learned and would still like to learn (making connections between questions asked and information encountered). KWL strategy has been found very effective in helping students elicit prior knowledge of the text, set purpose for reading and help students monitor comprehension (Fitiri, 2013).

### **PURPOSE OF THE STUDY**

The purpose of the study was to determine the effects of Know What Learn and lecture methods of teaching on Senior Secondary School Students' academic achievement and motivation in reading comprehension. Specifically the study sought to:

1. Find out the differential effect of KWL and Lecture teaching methods on senior secondary students' achievement in reading comprehension.
2. Find out the effect of gender on the mean achievement scores of senior secondary school students taught reading comprehension using the KWL teaching strategy and Lecture method.

### **RESEARCH QUESTIONS**

The following research questions guide the study:

1. What is the differential effect of KWL and Lecture teaching strategies on Senior Secondary Students' achievement in reading comprehension?
2. What is the effect of gender on the mean achievement scores of senior secondary school students in reading comprehension when taught using the KWL teaching strategy and lecture method?

### **HYPOTHESES**

To guide the study, the following hypotheses were formulated and tested at 0.05 level of significance:

HO<sub>1</sub>: There is no significant difference in the mean achievement scores of Senior Secondary School students taught reading comprehension using the KWL and Lecture methods.

### **METHOD**

This study adopted a pre-test, post-test, control group experimental design with a 2 x 2 factorial matrix to determine the effects of training in know-what-learn strategy and lecture method on students' academic achievement and motivation in reading comprehension. The experimental group adopted know-what-learn strategy and the control group used the lecture method. The population of the study comprised all the senior secondary school two (SS2) English Language students in all the Government owned co-educational Secondary schools in Abia State in the 2016/2017 academic session numbering 7,837 students (3,283 male and 4554 female students) in Abia State (Abia State Secondary Education Management Board, 2017).

The SS II Students of Ibeku High School was purposively selected as the sample. Ibeku High School is one of the coeducational public secondary schools in Umuhia Educational Zone. The sample of the study consist of 80 students comprising 40 students assigned to the experimental groups and 40 students assigned to the control group from the same school. One class for experimental group has 17 males and 23 females (KWL) while the other class for control group has 13 males and 27 females. The instrument used was the Reading Comprehension Achievement Test (RCAT) which consist of 25 multiple-choice questions. The Pre-test Post- test achievements test items was based on the unit topics that consist of reading comprehension in English language that was taught to the students. The face and content validity were established for the Reading Comprehension Achievement Test (RCAT) Forms 1and 11.To ensure the face validity of the Reading Comprehension Achievement Tests (RCAT), they were presented to three specialists in Measurement and Evaluation and English language from Michael Okpara University of Agriculture, and an expert in Curriculum Studies from Alvan Ikoku Federal Collage of Education. The content validity of the Reading Comprehension Achievement Tests (RCAT) Forms 1and 11 were ensured through the use of the test blue prints and item analysis. Thereafter, the test items generated were sent to experts in Curriculum Studies from Alvan Ikoku Federal College of Education, two experts in Measurement and Evaluation and the two experts in English Language from Michael Okpara University of Agriculture, Umudike for comments and suggestions.

The researcher in collaboration with some Senior Secondary 2 English Language teachers developed a 25 item multiple-choice achievement test that was based on the topics to be taught on reading comprehension.10 questions out of the 25 multiple choice questions items were of low level cognitive domain while the other 15 questions were based on high level cognitive domain.

The reliability of the Reading Comprehension Achievement Test was 0.85. The instrument was subjected to trial testing. The Reading Comprehension Achievement Test (RCAT) instrument was administered to 30 students who were not sampled for the study. The scores obtained from the trial testing were subjected to Kuder-Richardson (KR-20) formular to determine the internal consistency of the Reading Comprehension Achievement Test. The Kuder-Richardson (KR-20) was appropriate for determining the reliability of the Reading Comprehension Achievement Test because the instrument required only one correct answer in every case. The following decision rules were applied for the analyses of research questions:

- Accept any variable which computed mean is from 2.5 and above and reject any variable that has below the cut-of mean of 2.5.
- For the testing of hypotheses:
- If p value is less than 0.05 the Null hypotheses was rejected but if P value is greater than 0.05 the Null hypotheses was retained.

**Table 1:** Pre-test and posttest mean score and standard deviations scores of students in Reading comprehension achievement test due to exposure to KWL and Lecture Method

Teaching Method	Number of Students	Types of Test				Achievement Gains
		Pre-test		Post test		
		$\bar{X}??$	S.D	$\bar{X}??$	S.D	
KWL Method	40	16.90	4.73	37.37	6.31	20.47
Lecture Method	40	15.95	4.27	23.00	4.27	8.05

The data presented on the table indicated that students taught using K.W.L strategy had a mean achievement score of 16.90 and a standard deviation of 4.73 in the pre-test and a mean of 37.37 and a standard deviation of 6.32 in the post-test with a pre-test post-test gain of 20.47. The data also showed that students taught using the Lecture method had a mean score of 14.95 and a standard derivation of 4.27 in the pre-test and a mean score of 23.00 and a standard deviation of 4.36 in the post test, making a pre-test posttest gain to be 8.05. The findings reveal that students taught English language reading comprehension with KWL teaching strategy had a higher mean achievement gain score than those taught with Lecture method of teaching.

The finding of this study is in consonance with Adam (2013); Youniss (2013); Hamdan (2014); Riswanto, Risnawati and Detti ,(2014). The researchers observed that KWL strategy was effective in enhancing students' academic achievement.

**Table 2:** Pre-test and post –test mean achievement score and standard deviation scores of students in Reading comprehension achievement test due to teaching methods and gender.

Teaching method	Types of test	Gender							
		Male				Female			
		No. of Student			Achievement gain	No. of students			Achievement gain
			$\bar{X}$	S.D		$\bar{X}$	$\bar{X}$	SD	
1. KWL	Pretest	19	16.32	5.18		21	17.43	4.52	
	Post-test	19	36.16	6.22	19.84	21	38.48	6.35	21.05
2. Lecture method	Pretest	14	14.57	4.25	15.15	26	15.15	4.35	
	Post-test	14	22.57	4.53	8.00	26	23.38	4.33	8.23

The data presented on the table indicated that the male students in the KWL experimental group had a mean score of 16.32 and a standard deviation of 5.18 in the pre-test while in the post-test, the male scored a mean score of 36.1 and a standard deviation of 6.22, with achievement gain score of 19.84. The result also shows that the female student in the KWL experimental group had a mean score of 17.43 and a standard deviation of 4.52 in the pre-test of KWL experimental group which is higher than that of male students in the pre-test of KWL experimental group, while the female students also had a mean score of 38.48 and a standard deviation of 6.35 in the post-test of the experimental group with achievement mean score of 21.05 which is higher than that of the male students in the post-test score of the KWL experimental group.

The data presented on the table also indicated that male students had a mean score of 14.57 and a standard deviation of 4.25 in the pre-test of the control group which was lower than the pre-test of the experimental group, while in the post-test, the male students had a mean score of 22.57 and a standard deviation of 4.53, with mean achievement gain of 8.00 which was lower than the experimental group. The result also shows that the female students had a mean score of 15.15 and a standard deviation of 4.35 in the pre-test of the control group which is higher than that of the male students score in the pre-test of the control group, while the female students had a mean score of 23.38 and a standard deviation of 4.33, with mean

achievement gain of 8.23 which is higher than that of the male students in the post-test of the control group. This findings shows that statistically sex is not a significant factor in academic achievement of male and female students taught English language Reading comprehension with KWL and Lecture method though in every endeavour there is always gender perceptible. The finding is in consistent with Youniss (2013);Hamdan (2014); Riswanto, Risnawati and Detti (2014) who found that gender does not play significant roles on students' academic achievement when taught with KWL teaching strategy.

**Hypotheses 1:** There is no significant difference between the mean achievement scores of the Senior Secondary students taught using KWL and the lecture method.

**Table 4:** Analysis of covariance (ANCOVA) for Reading Comprehension Achievement Test mean achievement scores of students when taught using KWL and lecture method

Sources of Variation	Type II sum of square	Df.	Mean sum of square	F.	Significance
Correlated model	4775.340 <sup>a</sup>	2	2387.670	114.824	.000
Intercept	2236.533	1	2236.533	107.556	.000
Pre-test	699.828.541	1	699.828	33.655	.000
Teaching method	3214.526	1	3214.528	154.588	.000
Error	1601.174	77	20.794		
Total	79521.000	80			
Corrected total	6376.488				

a. R square = .749 (adjusted R squared = 0.742)

The data on the table above shows that the teaching methods (KWL and Lecture method) is a significant factor in the mean achievement scores of the students in the Reading comprehension Achievement Test, this is because the p-value of 0.00 is less than 0.05. This indicates that we reject the null hypotheses which state that there is no significant difference between the mean achievement scores of students in Reading comprehension Achievement Test when taught using the KWL and lecture method. Thus, this implies that there was a significant difference between the mean achievement scores of students in Reading comprehension Achievement Test when taught using the KWL and Lecture method.

On the test of hypothesis presented on table 4.8 it was revealed that there was a significant difference in the academic achievement mean score of the students taught using KWL and those taught using Lecture method. The result revealed that KWL used learners' prior knowledge to enhance students' academic ability. This result is in agreement with Fritz (2002) argument in favour of KWL. The argument is based on the fact that KWL teaches students to read actively by engaging previous knowledge, asking questions, and recalling important information in the text to enhance comprehension.

**CONCLUSION**

This study was carried out to investigate the effect of KWL strategy and lecture method of teaching on Senior Secondary School students' academic achievement and motivation in Reading comprehension. The result of the study shows that students exposed to KWL strategy had a higher mean academic achievement score gain than their peers exposed to lecture method of teaching.

## RECOMMENDATIONS

Based on the findings of the study, the following were recommended by the researchers.

- 1 Teaching KWL are different from that of ordinary traditional (Lecture) teaching. As a result of this, English language teachers should be trained and versed on how best to develop and use KWL strategy so as to achieve their objectives of enhancing academic achievement and motivation in Reading comprehension.
- 2 Teaching of English language Reading comprehension should be encouraged and emphasized among English language teachers. Teachers should not teach in isolation, rather strategy such as KWL should be adopted each time English language Reading comprehension is to be taught.
- 3 Efforts should be made by curriculum experts to incorporate KWL strategy into the teaching of English language Reading comprehension. There should be a review in the current instructional procedure to accommodate KWL into Senior Secondary teaching syllabus. This is to increase interactivity and reduce the recurrent mass failure in English language external examinations.

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