EFFECT OF PRIOR KNOWLEDGE/FAMILIARITY ON SENIOR SECONDARY STUDENTS' ACHIEVEMENT IN READING COMPREHENSION

EBIBI, Johnson ojelg
Department of Arts Education
Faculty of Education
University of Jos

ANYEBE, Mary Ocheenia
Department of Arts Educatipn
Faculty Of Education
University of Jos

NNAJI, Patience O.
Department of Television Journalism
NTA Television College Jos

&

OGO, Philip .
Department of General Studies
Federal College of Education
Okene, Kogi State

Abstract

The study examined the effect of familiarity/prior knowledge Q" senior secondary 11 students' reading comprehension in Jos South Local Government Area of Plateau State. TWO research question,' and two hypotheses were formulated to guide the study. The quasi experimental specifically the pretest, post test design was adopted because it was difficult to have complete randomization into groups without Other school

programmes being affected. The sample consisted of 80 students Of both sexes drawn from two co-educational institutions from the study area using the simple random sampling technique The instrument used for data collection was Reading Comprehension Achievement Test (RCAT). The data collected were analyzed using means, standard deviation and ANCOVA. The findings revealed that students with prior knowledge/familiarity Performed better than those without it. It also showed that male and female students' achievement in comprehension differ significantly as the female students did better in comprehension than their male counterparts. Based on the findings, it was suggested that instructional programmes be structured/planned in such a way that it promotes extensive reading by students which would provide sufficient background knowledge. Adequate exercises that will reinforce the learning in class should be given to the students from time to time by their teachers.

Key Words: Familiarity/prior knowledge, reading, achievement, comprehension, reading comprehension

INTRODUCTION

Reading is central to any student's success in academic pursuit and even in career growth. This is true because reading occurs in every area of life. However, a great number of students have serious difficulties in comprehending reading materials in school and even after their secondary education. Many studies have shown that students cannot succeed in their academic work without the ability to read with adequate comprehension (Enyi & Ereke, 2011). A number of factors are responsible for this ugly trend.

One of the factors responsible for students' lack of success in the comprehension of what they read is their lack of understanding of the nature of the reading process. Reading is a complex process that involves interaction or negotiation between the reader and the author; it also means obtaining information Yom print. It is a meaning getting process; an interaction between the reader and the

author (Oyetunde & Muodumogu, 1999). Beyond the failure to understand the nature of the reading process, a host of other reader characteristics such as fluency, working memory, background knowledge and the use of reading strategy have all been linked to reading comprehension but studies in this area have been inconsistent (Cuttings & Scarborough, 2006; Goff, Pratt & Ong, 2005; Samuelson & Braten, 2005).

While the above factors inhibit students' reading or comprehension level, it is also important to consider such factors as prior knowledge or familiarity with text. In other words, while factors listed initially (reader based) are quite essential, it is also true that familiarity with text to some extent affects a reader's level of comprehension as well.

In other words, many factors may contribute to cognitive difficulties in comprehending expository texts, such as high level of abstraction or presence of unfamiliar concepts. Several studies (Pratt & Ong, 2005; Samuelson & Braten, 2005) have revealed that prior knowledge is an integral part of the comprehending process or students' lack of prior knowledge (familiarity) has also been identified as a factor that affects their comprehension level. While discussing the schema theory for instance, Langer (2005) says readers must activate their prior knowledge for effective and better comprehension. This implies that two individuals equal in reading comprehension ability but differing in prior knowledge would, in all likelihood, exhibit different levels of comprehension of the same text. Such differences are likely to show in the assessments of reading comprehension ability. There is no way of knowing what part of an individual's score is due to reading comprehension ability and what to prior knowledge. Thus, attempts to compare several individuals in terms of their reading comprehension ability are confounded by the differences in their prior knowledge. Findings are then subject to misinterpretation. One student may do very poorly because of lack of prior knowledge whereas another student with perfectly adequate prior knowledge may do poorly because of inadequate reading comprehension skills. It seems important to distinguish between these sources of failure since each requires different forms and degrees of assistance.

The relationship between prior knowledge and comprehension have generally been investigated under the overall framework of schema theory. According to schema theory, the reader's background knowledge serves as scaffolding to aid in encoding information from the text. Schema theory deals with preexisting knowledge and structures stored in the mind (Nassaji, 2002) and how readers combine their previous knowledge with text (Ajideh, 2003 ; Alderson, 2003; Alptein, 2006). Thus, a person with more background knowledge is able to comprehend better than a person with less prior knowledge. This implies that the amount of knowledge readers have about a text topic is believed to correlate significantly with their comprehension. In addition, some researchers have suggested that actively building topic knowledge prior to reading will facilitate learning from text. Besides, subject matter specialists, according to Oyetunde (2009), have stressed the importance of activating students' background knowledge.

Working within a research paradigm of how prior knowledge interacts with different types of text structure, studies examining predictors of specific text types suggest that background knowledge is needed for comprehension of expository passages. Best, Floyd and McNamara (2008) observe differential demands of narrative and expository texts, such that word recognition was the strongest predictor for comprehension of narrative text while background knowledge contributed the largest amount of variances for comprehension of expository passages. Other studies have further supported the contribution of background knowledge while also recognising additional factors that appear to influence expository text comprehension (Samuelson & Braten 2005; Sa'nchez & Garcia, 2009). For instance, Samuelson & Braten (2005) found that background knowledge and the use of strategies (elaboration, organization and monitoring) were strong predictors of 10th grade students' comprehension of expository text, even after accounting for word recognition ability. Besides, Sa'nchez and Garcia (2009) found that understanding discourse markers such as connectives and signaling devices significantly contribute to comprehension of expository passages. If a student has learned a lot about a topic in his home language, it is easier to develop a new language about that topic.

Prior/background knowledge or familiarity is instrumental to comprehension for all learners (Marzano, Pickering & Pollock, 2004).

PURPOSE OF THE STUDY

This study was designed to ascertain the extent to which familiarity/prior knowledge would affect the quality and quantity of information students can comprehend from a given text.

Specifically, the study sought to:

1. Determine the extent to which prior knowledge/familiarity affect students' achievement in reading comprehension.
2. Determine whether familiarity/prior knowledge affect SS2 male and female students' achievement in reading comprehension.

RESEARCH QUESTIONS

The following questions were formulated to guide the study:

1. To what extent would familiarity/prior knowledge affect students' mean achievement scores in reading comprehension?
2. To what extent would familiarity/prior knowledge affect the mean achievement scores of male and female students in reading comprehension?

HYPOTHESES

1 The mean achievement score of students who are familiar with text/have prior knowledge and those who are not familiar with topic/have no prior knowledge does not significantly differ in reading comprehension.

2 The mean achievement score of male and female students who are familiar with text/have prior knowledge does not significantly differ in reading comprehension.

METHODOLOGY

The design of this study was quasi-experimental specifically the non-equivalent groups' pre-test, post-test design. This design was adopted because intact classes

were used as it was not possible to have complete randomization of the students into groups. The sample consisted of 80 SS2 students drawn from two (2) co-educational secondary schools in Jos South LGA of Plateau State. The male and female students were made of equal number. The schools were gotten using the simple random sampling technique. The familiar (experimental) group was exposed to familiarity with text (treatment) while the unfamiliar (control) group was not. A Reading Comprehension Achievement Test (RCAT) was used to collect data. The instrument was validated by experts before the RCAT was trial tested on two classes within the study area. The reliability of the instrument was computed using KuderRichardson21 coefficient and found to be 0.70. The scores obtained were analysed using means, standard deviation and ANCOVA. The hypotheses were tested at a 0.05 level of significance.

Experimental Procedure

The researcher taught reading comprehension to the two groups within the study period of four weeks. The two groups were first given a pretest to ascertain the level of performance of the students in the two groups before the treatment. The pretest was administered to the two groups under normal classroom conditions (during their normal classes). The pretest scores were recorded separately for each group. The researcher selected two arms of SS2 namely; SS2A and SS2C to represent familiar (experimental) and unfamiliar (control) groups respectively. Thereafter, the researcher commenced the treatment on the familiar (experimental) group.

The treatment package entailed discussing terms which were related to the text (passage) and instrumental to the understanding of the comprehension text with the students before answering the questions. The essence was to familiarize students or give them background knowledge of the text to enhance easy comprehension. This is in agreement with schema theory which holds that prior knowledge of a text gives students advantage over their mates and helps them in understanding the text better. The familiarization exercise was done on all the comprehension passages treated within the (eight-week) period of the study. The control group was taught conventionally without exposure to treatment that is, familiarity with text or prior knowledge.

At the end of the treatment period, the post test was administered to both familiar (experimental) and unfamiliar (control) groups under normal classroom conditions. The essence of the post test was to ascertain whether a difference will be observed in the achievement scores of students in the two groups. The pretest and post test scores of the two groups were analysed using means, standard deviation and ANCOVA.

Research Question One

To what extent would familiarity affect students' mean achievement scores in reading comprehension?

Table 1 : Mean Achievement Scores and Standard Deviations of Students in Experimental and Control Groups

		Pre-Test		Post-Test		Mean	Mean Gain
Group	N	M	SD	M	SD	Gain	Difference
Experimental	40	25.08	9.17	71.63	13.01	46.55	18.23
Control	40	29.38	9.92	57.70	12.01	28.32	

Result in Table I shows the mean achievement scores of students in the experimental and control groups as 25.08 and 29.38 with standard deviations of 9.17 and 9.92 respectively. Table 1 also reveals the mean achievement scores of students at post test as 71.63 for experimental group and 57.70 for control group with standard deviations as 13.01 and 12.01. The mean gain for the experimental group was 46.55 while the control group gained 28.32. The mean gain difference between the two groups was 18.23. This implies that students in the experimental group performed better than the control group.

Research Question Two

To what extent would familiarity affect the mean achievement scores of male and female students in reading comprehension?

Table 2 : Mean Achievement Scores of Male and Female Students in the Experimental Group

		Pre-Test		Post-Test		Mean	Mean Gain
Gender	N	M	SD		SD	Gain	Difference
Male	20	23.00	8.33	64.40	11.11	41.40	10.30
Female	20	27.15	7.71	78.85	10.68	51.70	

Result from Table 2 shows the mean achievement score for male students as 23.00 with a standard deviation of 8.33. The mean achievement score of female students •as revealed as 27.15 with a standard deviation of 7.71. At post-test, the table indicates the means of male students as 64.40 with a standard deviation of 11.11 while female students had a mean of 78.85 with standard deviation as 10.68. Result fromthe table further shows the mean gain of 41.40 for male students and 51.70 for female students. The difference in mean gain of male and female students was 10.30. Thisimplies that female students did better than their male counterparts.

Hvpothesis One

The mean achievement score of students who are familiar with text/have prior knowledge and those who are not familiar with topic/have no prior knowledge does not significantly differ in reading comprehension.

Table 3:

ANCOVA Table fo r Effect of Familiarity of Text on Students' Achievement in Reading Com prehension

Source	Type Ill Sum of Squares	df	Mean Square		Sig.
Corrected Model	6005.74	2	3002.87	22.90	.00
Intercept	21245.77	1	21245.77	162.03	.00
Pretest	2127.62	1	2127.62	16.23	.00
Gp	5036.44	1	5036.44	38.41	.00
Error	10096.15	77	131.12		
Total	350601.00	80			
Corrected Total	16101.89	79			

Table 3 presents an Analysis of Covariance (ANCOVA) to determine the effect of familiarity of text on students' mean achievement scores in reading comprehension. The table shows F 1,77=38.41 and p=0.00 with a=0.05 for group (where u is the level of significance set for the study). With p< a=0.05, it indicates that the observed mean difference between students with text prior knowledge and those without (none) was significant. The hypothesis that the mean achievement score of students who are familiar with text/have prior knowledge and those who are not familiar with text/have no prior knowledge does not significantly differ in reading comprehension was not

accepted. The conclusion drawn by the study was that prior knowledge on text influences/enhances students' performance in reading comprehension.

Hypothesis Two

The mean achievement score of male and female students who are familiar with text/have prior knowledge does not significantly differ in reading comprehension.

Table 4:
ANCOVA Table for Effect of Familiarity of Text on Male and Female Students' Achievement in Reading Comprehension

Source	Type Ill Sum of Squares	Df	Mean Square		Sig.
Corrected Model	2683.42	2	1341.71	12.67	.00
Intercept	16186.02	1	16186.02	152.86	.00
Pretest	595.40	1	595.40	5.62	.02
Sex	1512.33	1	1512.33	14.28	.00
Error	3917.95	37	105.89		
Total	211807.00	40			
Corrected Total	6601.38	39			

Table 4 presents an Analysis of Covariance (ANCOVA) to determine the effect of familiarity of text on male and female students' achievement in reading comprehension. The table shows Fl,37=14.28 and p=0.00 with a=0.05 for gender. With p< 0=0.05, it indicates that the observed mean difference between male and female students with text prior knowledge was significant. The hypothesis that the mean achievement score of male and female students who are familiar with text/have prior knowledge do not significantly differ in reading comprehension was not accepted. The conclusion drawn by the study was that prior knowledge benefitted female students more than their male counterparts in reading comprehension.

Discussion

This study set out to investigate effect of familiarity/prior knowledge on senior secondary Il students' achievement in reading comprehension in Jos North and South LGAs of Plateau State. The results of the study revealed that students that were familiar with the text achieved significantly higher in reading comprehension than those without familiarity or prior knowledge. The study also found that male Ed female students'

achievement in reading comprehension differ at a significant level as the female students performed better than their male counterparts. This Ending is in consonance with several studies (Lynn & Mikk, 2009; Mullis, Martin, Gonzalez & Kennedy, 2003) which show that students with familiarity/background or prior knowledge perform better in their tasks than those who were not exposed to ±ese conditions. This finding also agrees with that of Marzano, Pickering, & Pollock (2004) who opine that prior knowledge or background knowledge is instrumental to comprehension for all learners. These scholars and the result of findings all stress that if a student has learned a lot about a topic in his home language, it is easier to develop new language about that topic. The study further confirms the schema theory which states that all knowledge is organized into units. within these units of knowledge or schemata, is stored information. A schema is a generalized description or a conceptual system for understanding knowledge - how knowledge is represented and how it is used (Bartlett, 1932). According to this theory, schemata represent knowledge about concepts, objects and the relationships they have with other objects, situations, events, sequences of events, actions, and sequences of actions. Linguists, cognitive psychologists, and psycholinguists have used the concept of schema (plural: schemata) to understand the interaction of key factors affecting the comprehension process. This implies that the amount of knowledge readers have about a text topic has been found to correlate significantly with their comprehension or that prior knowledge influences what is understood from a text and that prior knowledge is an integral part of the comprehension process CAjideh,2003). The observed difference in the performance may be linked to the prior knowledge or familiarity with text which the students were exposed to and which gave them more background knowledge and placed them at advantage over those in the unfamiliar group. For example, Samuelson and Braten (2005) found that background knowledge and the use of strategies (elaboration, organization, and monitoring) were strong predictors of 10th grade students' comprehension of expository texts, even after accounting for word recognition ability. This further affirms the fact that comprehension of a text depends on relevant previous knowledge.

The study further revealed that female students performed better than their male counterparts both in the pretest and post test. In other words, both male and female students were exposed to familiarity with text yet female students did better in reading comprehension than the males. The superior performance of female students over their male counterparts in the reading comprehension when they were both exposed to familiarity with the text corroborates several studies which have shown that females are better in tasks that require verbal ability than the males. For instance, Lynn and Mikk (2009) made a contribution to the study of international gender differences in reading ability by examining gender differences in means and variances in the PISA (Program for International Student Assessment) and the PIRLS (Progress in International Reading Literacy Study). One of the PISA studies done with 15-year olds in 40 countries was carried out in 2003, and in all these countries females obtained a higher average score than males. The other PISA study of 15-year-olds in 56 countries was carried out in 2006, and again, in all countries females obtained higher average scores over males. A world-wide measurement of reading ability was conducted, also by the PIRLS, evaluating the reading achievement of fourth-grade students (10-year olds) in 35 countries (Mullis, Martin, Gonzalez & Kennedy, 2003).

Summary of Findings

The study found the following:

1. Exposure to familiarization with text enhanced students' performance in reading comprehension.
2. Female students performed better than their male counterparts in reading comprehension both in the pretest and post test.
3. The achievement mean scores of male students were found to be significantly different from those of their female counterparts in reading comprehension.

4. There was a significant difference in the protest means score of students in experimental and control groups.

Recommendations

Sequel to the findings of the study, the following recommendations were made:

1. Instructional activities should be designed in such a way that will promote extensive reading by students. This would provide sufficient background knowledge. In other words, reading materials should be designed in such a way as to give extensive and adequate experience to the students as this will in turn familiarize them with texts since this process has been found to improve performance in reading comprehension.
2. Adequate exercises that will reinforce the learning in class should be given to the students from time to time by their teachers and parents.
3. Male students should put in more effort and interest in reading comprehension to enhance better performance like their female counterparts.
4. Teachers of English language should incorporate the use of familiar texts in their teaching of reading comprehension as it has been found to be effective in improving the performance of students in reading comprehension.

Conclusion

The study investigated the effect of familiarity/prior knowledge on senior secondary students' reading comprehension in Jos South LGA of Plateau State. From the analysis of the result, it was gathered that male and female students' achievement differ in reading comprehension. The female students performed better than their male counterparts. It was gathered from the study that students who are familiar with or have prior knowledge of the text performed better in reading comprehension than those not exposed to the text. Based on the findings from the study, it was concluded that exposure to/familiarization of text is effective in improving Ss2 students achievement in reading comprehension.

References

Ajideh, P. (2003). Schema based pre-reading tasks: A neglected essential in the ESL reading class. The Reading Matrix, 3 (1), 1-14.

Alderson, J. C. (2000). Assessing reading. Cambridge England: Cambridge University Press.

Alptein, C. (2006). Cultural familiarity in inferential and literal comprehension in L2 reading, System, 34, 494-508.

Bartlett, F.C. (1932). Remembering: A study in experimental and social psychology. Cambridge, England: Cambridge University Press.

Best, R. M., Floyd, R. G. & McNamara, D. S. (2008). Differential competencies contributing to children's comprehension of narrative and expository texts. Reading Psychology, 29, 137-164. Doi; 10.1088/027027108019630951.

Cutting, L. E. & Scarborough, H. S. (2006). Prediction of reading comprehension: Relative contribution of word recognition, language proficiency, and other cognitive skills can depend on how comprehension is measured. Scientific Studies of Reading, 10, 277-299. Doi: 10.1207/s1532799xssr1003_5

Enyi, A. U. & Ereke, J. S. (2011). Utilization of comprehension matrix as a tool for designing reading comprehension, Reading and Literacy in Nigeria, 13, 72-77.

Goff, D. A., Pratt, C., & Ong, B. (2005). The relations between children's reading comprehension, working memory, language skills and components of reading decoding in a normal sample. Reading and Writing, 18,583616.d0i:10.1007/s1145-004-7109-O

Langer, J. A. (2005). Examining background knowledge and text comprehension. Ibadan: Longman.

Lynn R. & Mikk, J. (2009). Sex differences in reading achievement. Trames, 13(63/58), 3-13.

Marzano, R. , Pickering, D. J., & Pollock, J. E. (2004). Classroom instruction that works: Research-based strategies for increasing student achievement. Alexandria, VA: ASCD.

Mullis, 1. S., Martin, O. M., Gonzalez, E. J., & Kennedy, M. A. (2003). PIRLS 2001 international report: IEA's study of reading literacy achievement in primary schools.

Chestnut Hill, MA: Boston College. Retrieved May 26, 2008, fromhttp://pirls.bc.edu/pirls2001 i/PIRLS2001_Pubs_IR.html

Nassaji, H. (2002). Schema theory and knowledge-based processes in second language reading comprehension: A need for alternative perspectives. Language learning, 52, 439-481.

Oyetunde, T. O. & Muodumogu, C. A. (1999). Effective English teaching in primary and secondary schools. Jos: Conference on Educational Improvement.

Sa'nchez, E., & Garcia, J. R. (2009). The relation of knowledge of textual integration devices to expository text comprehension under different assessment conditions. Reading and writing, 22, 1081-1108. Doi: 10.100/s11145-008-9145-7.

Samuelson, M. S. & Braten, I. (2005). Decoding, knowledge, and strategies in comprehension of expository text. Scandinavian Journal of Psychology, 46,107-117.doi:10.1111.1467-9450.2005.00441.x