



EFFECT OF TEACHING CRITICAL THINKING SKILLS ON STUDENTS' PERFORMANCE IN READING COMPREHENSION IN JUNIOR SECONDARY SCHOOLS IN KADUNA, NIGERIA

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Abstract:

This study investigated the effect of teaching critical thinking skills on reading Comprehension of students in selected Junior Secondary Schools in Kaduna, Nigeria. The schools randomly selected were Government Secondary School Kakuri (Experimental group) and Government Secondary School Kurmi Mashi (control group). Both groups were given a pre-test prior to teaching and a post-test after six weeks of teaching. Both groups were assessed after six weeks of learning. The findings revealed significant difference in the performance of students taught reading comprehension using critical thinking questions. Based on the findings, teachers are encouraged to use critical thinking questions to motivate and engage their students in purposeful and thought-provoking discussion that will inspire them to think critically and creatively.

Keywords: teaching critical thinking skills, students' performance, reading comprehension

1. Introduction

In today's complex society, reading is a critical skill for children's success both in and out of school. In the school setting, children are expected to read textbooks. Assignments are given to them on the assumption that they can obtain information from the printed page independently. Outside of school children still need good reading ability to cope with the challenges of their everyday living. Despite all efforts of teaching English as a second

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language in Nigeria, students suffer from difficulties in language learning skills. The problem appears to be in the educational system, that teachers traditionally, do their best to teach 'what to think' rather than 'how to think effectively about the subject matter which is termed as critical thinking.

The issue of incorporating critical thinking skills in education has raised contradictory ideas about whether critical thinking can be taught or not. A variety of approaches to teaching, measuring and assessing critical thinking skills and abilities have been developed. In addition, teaching critical thinking skills has raised many issues such as culture, emotion, transferability and generalization of the taught skills which are discussed and answered by the experts. Despite all contradictory ideas and beliefs on teaching critical thinking skills, however, everyone agrees that thinking critically is the major goal of education (Reed, 1998, Kamali & Fahim, 2011, Mansor & Pantea, 2012).

Bearing in mind that Nigerian students are not educated as critical thinkers in their first language, providing them with an appropriate context to foster critical thinking dispositions in second language setting is of crucial importance. This study provides the experts in the field of language teaching with empirical data on the relationship between critical thinking skills and learners' performance in reading comprehension. It yields a realm of study for researchers who are interested in critical thinking and its relationship with reading comprehension.

Most studies (Paul, 2004, Oyetunde, 2009 and Yusuf, 2011) in reading comprehension so far conducted in Nigeria have concentrated on examining reading difficulty of students at the primary and junior secondary levels with focus on the texts being used. However, there are no empirical researchers on critical thinking and its effect on reading comprehension carried out in Kaduna, Northern Nigeria as far as this researcher is aware of. Literature search reveals that critical thinking skills have received little or no attention in Nigeria (Abe, 1983, Oyetunde, 2009, Umolu, 1989, cited in Yusuf, 2010). The absence of such crucial information constitutes a problem that has motivated the present study. There is, therefore, the need to ascertain the extent to which critical thinking influence reading comprehension. To this end, this study will focus on the effect of teaching critical thinking skills on students' reading comprehension in junior secondary schools.

2. Objective of the Study

The objective of the study is to determine the effect of teaching critical thinking skills on students reading comprehension in junior secondary schools in Kaduna, Nigeria.

2.1 Research Question

What is the effect of teaching critical thinking skills on students' reading comprehension in junior secondary schools in Kaduna, Nigeria?

2.2 Hypothesis

Critical thinking skill has no significant effect on students' reading comprehension in Junior Secondary schools in Kaduna, Nigeria.

3. Literature Review

Language experts have difficulty putting forward a precise and rigorous definition of critical thinking. Halvorsen (2005) and Pierce (2005) state that "critical thinking" is in a mystified concept. No single definition of critical thinking is widely accepted. Fakuda (2003) also asserts that there is no consensus on a definition of critical thinking in psychology, education or philosophy, and indeed the definition of critical thinking has been changing.

Reed (1998) proposed two central components of conceptualisation of critical thinking that were particularly prominent in educational contexts. The first one is 'the ability to assess reasons properly which is referred to as the "*reason assessment components*". The second one is *disposition to base one's actions and beliefs on reasons; that is, to do reason assessment and be guided by the results of such assessment*' (p.23). Reed asserts that "*both components are essential to the proper conceptualization of critical thinking, possession of which is essential for the achievement of critical thinking by a person*" (1998:23). The ultimate objective for teaching critical thinking is to help students make correct judgements based on the careful weighing of available evidence. However, critical thinking is a very intricate endeavour. Paul (2004) states that such an enterprise requires students to learn several subtasks which include, among others:

- developing a sceptical approach to problem solving and decision making;
- breaking down problems into their simplest outcomes;
- searching for evidence that both supports and refutes a given conclusions;
- maintaining a vigilant attitude towards their personal bias, assumptions, and values that may interfere with making an objective decision.

According to Reed (1998), the broad concept of critical thinking has brought about different definitions and terminologies. This lack of consensus on the definition of critical thinking has rested in the grounding of various theories and models in two distinct disciplines, psychology and philosophy. Philosophers focus mostly on the nature and products of critical thinking, while psychologists concentrate mostly on the process of cognition, and seeking the conclusion in empirical research. On the other hand, some educators (Kuhn, 1992; Kurfiss, 1998; Marzona et al., 1988; Quellmalz, 1987; Weinstein, 1995, cited in Reed, 1998) have drawn on both psychology and philosophy to develop a rigorous theory of critical thinking for teaching.

Halvorsen (2005) also adds that critical thinking is not an easy concept to define, as it can mean quite different things to different people in different contexts and cultures. Nevertheless, instructors can incorporate some of its key elements in their classrooms. He defines critical thinking as: "*to think critically about an issue, to consider that issue from various perspectives, to look at and challenge any possible assumptions that may underlie the issue*

and to explore its possible alternative." (p.16) Supporting the necessity of teaching critical thinking skills in ESL contexts, Kabilan (2000) says the idea that language learners can be proficient by mastering the mechanisms of language was overshadowed by communicative approach in 1950s, emphasizing that learners become proficient by using the language not learning about language. Today it is strongly believed that using language and knowing the meaning alone do not lead learners to proficiency. They need to display creative and critical thinking abilities in the language of expression of ideas. However, critical thinking skills should not be taught separately but incorporated in the curriculum.

Paul (2004) stresses the connection between critical thinking and reading comprehension by stating that the reflective mind improves its thinking by reflectively thinking. Likewise, it improves its reading by reflectively thinking and reading to comprehend. His quotation follows "*improvement in one is paralleled by improvement in the other.*"

Viewing reading comprehension as a vital part of second language curriculum, Barnett (1989) describes several reasons for its importance: It remains an important goal in many programmes; it can be maintained after students complete formal language study; and it fosters the development of literacy skills. Some of the mental skills employed in reading comprehension, as Grabe (1991) states, are inference, analysis, synthesis, and evaluation which are what experts include "*as being at the very core of critical thinking*" (Facione, 1992, Olaofe, 1990, 2007).

3.1 Sample and Sampling Technique

Two schools were randomly selected from the 384 Junior Secondary Schools in Kaduna North and South Local Government Areas. The two schools are located far apart (i.e Kaduna North and Kaduna South) to minimise interaction between the two schools. The two schools were Government Secondary School Kakuri (Kaduna South) and Government Secondary School Kurmin Mashi (Kaduna North). Intact classes were used because of the experimental nature of the study. Sixty Junior Secondary students in year 3 were used for the study, i.e thirty (30) students per class in each of the two schools.

3.2 Research Design

A quasi experimental non randomization control design was used. A pre-test post-test design was adopted. A pre-test was administered prior to the commencement of teaching (treatment) in order to establish the homogeneity of the students. A post-test was administered after six weeks of teaching to determine any probable changes in the experimental group.

3.3 Instrumentation

The instruments used for the study were reading comprehension passages from which test items were drawn on critical thinking skills. Six passages were carefully selected from the *Junior English Project for Junior Secondary Schools Book 3* text in use in the schools. The

passages were selected because of its interesting nature, relevant subject matter and interest to both genders. The content of the passage was educative and informative and adequately provided some of the needed items for the tests.

3.4 Administration of instruments

A pre-test on two passages was administered to both control and experimental groups to establish the homogeneity of the students. The experimental group was taught reading comprehension using critical thinking questions for six weeks while the control group had their normal reading comprehension lessons taught by their teacher.

A post-test (on the same two passages) was administered on the two groups after six weeks of teaching to determine the impact of critical thinking skills on students' performance in reading comprehension.

3.5 Treatment

Step 1: Teacher encourages students to engage their minds in the reading task by setting the purpose for reading. She encourages students to participate actively by engaging in frequent student talk.

Step 2: Teacher sets the tone before reading the passage by asking some critical thinking questions about the title of the passage such as: What does the title of this passage suggest? Why do you think so? Does the title of this passage suggest what the passage is all about?

Step 3: Teacher motivates students to use their imagination to provide additional information to the text even when such information is not explicitly stated in the text.

Step 4: Teacher informs students that they need to constantly engage their imaginative minds in reading in order to be able to provide such information about a text even though such information is not explicitly stated in the text. The following Critical thinking questions were asked, such as: why do you think the author concluded the passage the way he did? What made the author to write on this issue? How do you think the author's views will help to improve the current situation?

Step 5: Teacher reads the passage and stops frequently to share some critical thinking questions with the students such as, what picture of the character in the passage has the author successfully painted? What is the writer's point of view? What does the writer imply in the first paragraph?

Step 6: Teacher extends understanding by prompting students to think critically through shared, guided or independent reading.

Step 7: Teacher asks students to read one paragraph after the other and state the gist of the paragraph in one sentence. This entails students sifting the essentials from the many details. Critical thinking was involved in constructing a sentence on their own in their own words to capture the author's thought in each paragraph.

Step 8: Teacher asks students to suggest an alternative title for the passage and to provide reasons for their answer.

3.6 Data Presentation

3.6.1 Reading Comprehension Pre-test

Table 1 displays the homogeneity of the two groups in terms of reading comprehension. The mean scores for the two groups shown in Table 1 are 19.13 and 18.90. The homogeneous variances, 3.093 and 3.346 indicate the homogeneity of the groups.

Table 1: Descriptive statistics on reading comprehension passage 1 pre-test

	Group	N	Mean	Std. Deviation	Std. Error mean
Reading Comprehension Pre-test	Experimental	30	19.13	3.093	.565
	Control	30	18.90	3.346	0.611

Table 2 displays the homogeneity of the two groups in terms of critical ability pre-test. The means scores for the two groups as shown in Table 2 are 96.10 and 97.83. The homogeneity variances, 13.087 and 13.483 indicate the homogeneity of the groups.

Table 2: Descriptive Statistics on Reading Comprehension Passage 2 Pre-test

	Group	N	Mean	Std. Deviation	Std. Error mean
Reading Comprehension Critical Thinking Pre-test	Experimental	30	96.10	13.087	2.380
	Control	30	97.83	13.483	2.462

Tables 3 and 4 respectively display the significant difference between experimental and control group in reading comprehension.

Table 3: Descriptive Statistics on Reading Comprehension passage 2 Post-test

	Group	N	Mean	Std. Deviation	Std. Error mean
Reading Comprehension Post-test	Experimental	30	21.67	2.468	.451
	Control	30	19.23	3.645	.666

As displayed in Table 3, the mean scores of experimental and control groups are respectively 21.67 and 19.23. It can be concluded that teaching critical thinking skills has a significant effect on improving students reading comprehension.

Table 4: Descriptive Statistics on Reading Comprehension Passage 2 Post-test

	Group	N	Mean	Std. Deviation	Std. Error mean
Reading Comprehension Critical Thinking Post-test	Experimental	30	98.50	3.093	.565
	Control	30	96.37	15.384	2.809

Table 4 displays the descriptive statistic for the two groups on the Critical Thinking Test. The mean scores for the experimental and control groups are 98.50 and 96.37 respectively.

4. Discussion of Findings

To support the result in terms of the research question that proves the impact of teaching critical thinking skills on reading comprehension, it is necessary to state the views of

some cognitive experts regarding these two variables. Some of the mental skills employed in reading comprehension, as Grabe (1991), states are inference, synthesis, analysis, and evaluation which are what experts include as being at the very core of critical thinking.

In this regard, taking the definition of reading comprehension by Durkin's (1993), "*intentional thinking during which meaning is constructed through interactions between text and reader*". This construction of meaning during reading is "*a complex merger of skills, prior knowledge and text mediated by the language skills, motivation and interest of the reader*". This covers the full spectrum of Bloom's taxonomy in critical thinking including knowing facts, understanding concepts, application, analysis, synthesis, and reading comprehension. As it can be seen critical thinking and comprehension are both cognitive abilities having cognitive skill in common. This means improving the first (i.e critical reading) can contribute to the improvement of the other (i.e reading comprehension).

The statistical analysis in comparing the mean scores of the experimental and control groups on the critical thinking post-test, however, did not indicate a significant difference between the two groups. This lack of significant difference led the researcher to examine the difference between the mean scores in pre/post tests of the experimental and control groups. As tables 2 and 4 in the above section shows the experimental and control groups' mean scores on the pre-test of critical thinking were respectively 96.10 and 98.73, while these mean scores on the post-test (Table 4) were respectively 98.50 and 96.37. This amount of increase in the mean scores of experimental group in the post-test (96.10 to 98.50) indicates the trend in the improvement of students' critical thinking after the treatment period. It can be concluded that experimental group made small gains as compared to control group. However, the lack of significant difference can be justified from different aspects, such as the researchers' assumption, the limited time and few number of lessons conducted which were inevitable, the trend of improvement in students' critical thinking ability and the significant improvement in their reading comprehension, possibly a longer time can bring about better results. The studies done by (Brembeck, 1947; Jackson, 1961; and Colbert, 1986) in this line were all over 6 months, mostly with significant difference in gains. Although the current study failed to achieve significance, the small gains seem to be suggestive of a relationship between the two variables to motivate a further research.

5. Conclusion

Teachers can promote critical thinking in reading comprehension by creating conditions that activate students' thinking process. The most important thing is that language teachers should engage students in talking or purposeful discussion about the passage. Our classroom must be alive with literate tasks and rich conversations that inspire students into deeper comprehension. This can be achieved with the provision of critical thinking questions in teachers' guides and students' texts for all reading comprehension passages.

According to the results of the statistical analysis, students who participated in the treatment obtained significantly higher scores on reading comprehension post-test as compared to control group. Considering that students in this study did not receive any instruction on reading comprehension strategies, it can be concluded that using critical thinking skills can help them improve comprehension as a general cognitive skill, and process information at a deeper level.

5.1 Pedagogical and Curriculum Implications

As it is strongly believed that teaching critical thinking skill is vital for the improvement of language proficiency, implementing critical thinking principles in the present-day study can be a creative inspiration to curriculum, instructional materials developers, teachers, students and test developers.

The result of the study can inspire curriculum planners and instructional material designers to include critical thinking questions in students' textbooks, teachers' guides and in teacher training courses. Learners are in need of textbooks that invoke their critical thinking and teachers need to be trained to change their attitudes toward students and themselves. In spite of the fact that teachers have enormous responsibility in the classroom, it is crucially important that the exam-oriented teaching that produces learners who obtain good results on their exams, be replaced with a more flexible teaching that considers students' attitudes, interests and abilities, as well as critical and creative thinking.

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