

EFFECT OF READING TECHNIQUES ON STUDENTS' PERFORMANCE IN READING COMPREHENSION IN CALABAR MUNICIPALITY, CROSS RIVER STATE, NIGERIA

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Abstract:

The ability to comprehend a text is influenced by the reading technique adopted by the reader and the ability to process the information therein. This paper investigated the effect of PQRST and PQ4R reading techniques on the reading comprehension performance of secondary school students in Calabar municipality, Cross River State, Nigeria. The study was anchored on the constructivist learning theory. Two research questions and two null hypotheses were formulated to guide the study. Quasi-experimental research design was adopted for the study. The population of the study comprised 2,019 SS2 students in 18 public secondary schools in the study area. A total of 270 students were selected for the study through the simple random sampling technique. Two instruments were used for data collection: a Reading Comprehension Performance Test (RCT) and lesson plans. The reliability of the instrument was established using Kuder Richardson 20 formula and yielded a high-reliability coefficient of 0.79-0.83. Analysis of covariance (ANCOVA) was used to analyze data for all hypotheses. The results of the study revealed that while PQRST reading technique has significant effects on senior secondary 2 students' reading comprehension performance, PQ4R had no significant effect. Conclusion was made and it was recommended among others that teachers should correctly prepare and organize reading strategies to provide the desired outcome of high accomplishment in performance.

Keywords: Reading, Comprehension, PQRST, PQ4R, Performance



Introduction

English is one of the prominent international languages to be mastered or studied. In Nigeria, English has become a means of communication and as an official language. It has four important skills that should be mastered if one aspires to be proficient in a language:

listening, speaking, reading, and writing (Arista, Angraini & Ulfah, 2022). Reading is one of the major basic language skills that have an important role for students, especially in increasing their knowledge and experience in learning a language. Reading is an important aspect of communication to achieve full learning outcomes in a particular language. Having good English reading skills is very important for students. According to Ogar, Onah, Ikwen and Ukpapi (2026), reading is the process by which learners extract and interpret the author's intended message to achieve understanding. Zare and Othman (2013) defined reading as a cognitive activity in which the reader takes part in a conversation with the author through the text. It involves the ability of the students to recognize the written pattern of letters, words, sentences and the ability to comprehend them. This implies that for learning to have taken place, students should have had a better part of their classroom activities reading varieties of books ranging from fiction, science and so on.

However, lack of understanding is a major problem for students in reading. It is disheartening to note that the poor performance of students in English Language in public examinations in recent times has not been encouraging. Students do not perform well in the subject; especially the reading comprehension aspect of it. Many secondary school students in the study area find it difficult to state or retell what they have read. Besides that, some students have no enthusiasm in learning reading, and they always feel bored in the teaching and learning activity. Most importantly, teachers still rely on traditional teaching methods in teaching reading. This method is usually limited as it does not give students the ability to be creative and express themselves. Teachers do not employ appropriate reading strategies that can help improve students; comprehension before, during and after reading. This goes a long way to affect their overall performance in English Language as well as in other subjects both in internal and external examinations like West African Senior School Certificate Examination (WASSCE) and National Examination Council (NECO). Assessment on the performances of students in these examinations between 2021 and 2024 revealed fluctuating and generally disturbing percentages in students that obtained credit in at least five subjects including English Language and Mathematics. The use of effective and appropriate reading techniques could enhance performance, that is why the problem of this study is: Does the use of PQRST and PQ4R techniques improve students' reading comprehension?

Comprehension is the major focus of any reading activity and it is important because it aids in facilitating lifelong learning. The comprehension of a passage is built on the reader's prior knowledge of the content of the text, the reader's reaction and the reader's interest in the content. According to Purba and Simbolon (2020), reading comprehension is a cognitive, motivational and affective ability. The outcome of reading comprehension is the mental representation of a text meaning that is combined with the readers' previous knowledge. Abbas (2016) defined reading comprehension as the process of creating meaning from text. The purpose is to get an understanding of the text rather than to acquire meaning from individual words or sentences. Reading comprehension, therefore, is the ability to process text, understand its meaning and integrate with what the reader already knows. Without comprehension, reading is a meaningless activity regardless of the age or ability of the reader. When a student reads without having a clear understanding of what the text implies, then the essence of reading is not achieved (Meremikwu et al.2022; Adie et al 2019; Ibu et al.2019)

In response to the challenges students encounter in reading, effective and functional reading techniques should be employed by teachers in teaching reading such as PQRST and PQ4R reading techniques. Reading techniques are methods of reading usually involving practical skills by which a task is completed. According to Purba and Simbolon (2020), reading technique is a way to carry a particular task that is used by teachers to deliver the objectives of the material to the students in the classroom. It is a way of teaching in the

classroom which is important to the students to help them acquire the objectives of the lesson. Applying reading techniques to attain complete understanding with intermittent practice has been found to improve reading comprehension. (Berkeley, 2007). For this study. Two reading techniques: Preview, Question, Read, Summarize, Test (PQRST) and Preview, Question, Read, Reflect, Recite, Review (PQ4R) were used.

Theoretical framework

This study is anchored on the Constructivist Learning Theory by Jerome Bruner (1966). According to the theory, learning is not the transmission of information from teachers to students, but rather the construction of knowledge by students. Learners are not passive recipients of knowledge, but rather people who actively generate meaning from it. As a result, rather than the article itself, the meaning of an article is constructed by learners based on previous information, knowledge, emotion, experience, and culture. Learners' conceptions of knowledge are generated from a meaning-making quest in which learners engage in the process of developing individual interpretations of their experiences. This theory is relevant to this paper because comprehension allows students to build meaning for themselves through personal interactions with the text by activating prior knowledge and connecting it with what is being read thereby, making students independent readers that do not rely on the teachers' explanations. The steps in the PQRST and PQ4R approach can make learning more active, effortful, and participatory because of the reader's prior knowledge and what he is reading.

Purpose of the study

The main purpose of the study was to investigate the effect of reading techniques on students' performance in reading comprehension in Calabar Municipality, Cross River State, Nigeria. Specifically, the study examined

1. effect of PQRST reading technique on secondary school students' performance in reading comprehension
2. effect of PQ4R reading technique on secondary school students' performance in reading comprehension

Research questions

The under listed research questions were designed to guide the study:

1. How does the application of PQRST reading technique affect students' performance in reading comprehension?
2. How does the application of PQ4R reading technique affect students' performance in reading comprehension?

Hypotheses

The following null hypotheses were formulated for the study

1. There is no significant effect of PQRST reading technique on students' performance in reading comprehension.
2. There is no significant effect of PQ4R reading technique on students' performance in reading comprehension.

Literature Review

Preview, Question, Read, Summarize and Test (PQRST)

Preview, Question, Read, Summarize and Test (PQRST) is a reading technique developed by Thomas Staton (1982). According to the author, it offers a step-by-step guide for students before, during, and after the reading process which is useful for comprehension. This systematic technique consists of five steps to be followed during independent reading.

PQRST technique is one of the potential strategies that can be used to improve students’ reading comprehension. (Esteria, 2017). PQRST technique has some advantages in improving students’ reading comprehension. Purba and Simbolon (2020) assert that PQRST technique helps students to remember information from the text they read, use sound practice in reading text, encourages students to share responses to other students, enhance students’ comprehension of a text and motivates students to read and find information easily (Ebele & Agbade; 2020; Effiong, & Agbade, 2016; Ihekoronye et al. 2020). The researchers stated that to start students with this technique, teachers should explain or show what PQRST stands for.

P: Preview to identify main parts. Here, teachers create an anticipation guide and prime the brain for what is to come. Ask students to find the central idea or theme for each subsection, not just a global one for the chapter.

Q: Develop questions to which you want to find answers. Teachers ask students to create their original questions and to encapsulate the questions to teach to a classmate.

R: Read the material, twice if possible. Teacher asks the students to read the material twice to increase comprehension.

S: state the central idea or theme. Teacher asks the students to make summary of the central idea or theme they get from the text.

T: Test yourself by answering questions. Students answer questions based on the text, because by answering those questions and sharing their responses with others, they are summarizing the information.

The teacher who applies the PQRST strategy in teaching and learning needs to demonstrate how to focus on key points in the text, check for understanding, back-track to gain contextual cues and self-correct. This strategy helps the students internalize the steps in the procedure. The students are taken through several sessions of guided practice using appropriate texts until they are confident about using the strategy independently. The technique can create an enjoyable learning condition by helping the students to activate their background knowledge before reading and evaluating their comprehension after reading (Haeriyanto, 2012; Adie et al. 2022; Ibu et al. 2019; Igyu et al. 2022; Adie, et al. 2026; Meremikwu et al. 2022). This study technique does not operate by itself but rather is directly tied to the learner's underlying learning styles (that is, general approaches to learning) and other personality-related variables (such as anxiety and self-concept) in the learner. According to Holandyah (2012), this strategy could stimulate the students’ prior knowledge, could make them more active and thoughtful in getting the values of texts and could improve their reading comprehension (Ogunode, & Agbade, 2023; Olofu et al. 2019; Opara et al.2020; Agbade & Ironbar, 2017).

Dias (2018) carried out a study on Using PQRST method in teaching Narrative Text at MTsN 1 Ngawi in Academic Year 2017/ 2018). The results of the study revealed that there was a significant difference between students who were taught using PQRST techniques and students who are not taught by PQRST techniques. The findings are of great significance given that they focused on examining the use of PQRST reading technique and its effect on students’ comprehension of narrative texts. Similarly, Arista, Angraini and Ulfah (2022) carried out a study on improving students’ reading comprehension of descriptive text by using Preview. Question, Read, state and Test (PQRST) for seventh grade of SMPN 38 Palembang. The findings revealed that there was a significant improvement in students’ reading comprehension achievement after being taught using the PQRST method. It was concluded that PQRST method was beneficial to students as it helped improve their comprehension. Ghea (2018) carried out research on the impact of Meta-cognitive Strategy:

PQRST on the students' reading comprehension at the eleventh grade of SMA Muhammadiyah Kediri. The findings revealed that there was a significant impact of using PQRST on students' reading comprehension of narrative text.

Preview, Question, Read, Reflect, Recite and Review (PQ4R)

Another reading technique considered for this study is Preview, Question, Read, Reflect, Recite and Review (PQ4R). PQ4R is a reading comprehension technique developed by Thomas Staton and Francis Robinson (1972). This technique is designed to deal with reading materials in the form of textbooks. It enables students to learn systematically with the assistance of correct and efficient steps. Drawing upon cognitive psychology and educational research, PQ4R offers a systematic framework that guides students through the stages of reading, encouraging active engagement with the text and fostering deeper understanding (Fitriani & Suhardi, 2019). By incorporating pre-reading strategies such as previewing and questioning, students prime their cognitive processes, activating prior knowledge and setting purposeful intentions for reading (Khasanah, Hartono, Astuti & Wahyuni, 2024). The subsequent phases of reading, reflection, recitation, and review further reinforce comprehension through iterative reinforcement and consolidation of key concepts.

According to Wahyuningsih and Kiswaga (2019) the steps of PQ4R consist of: (1) Preview (performing brief reading in order to identify the main topics/the learning objectives that should be achieved); (2) Question (formulating questions based on the main topics that have been found from the main topics/the learning objectives by using the question words such as what, who and how; (3) Read (reading and responding to/answering the questions that have been formulated); (4) Reflect (simulating/informing the materials in the text); (5) Recite (summarizing the overall discussion on the topic of the given subject); and (6) Review (reading the abstract that has been summarized from the main topics/the learning objectives and re-reading the materials if the students are not sure yet with the abstract). implementation of PQ4R Model might strengthen the students' reading skills and might encourage the students to study independently while attaining a strong grasp on their understanding during the learning process (Omoteso & Sadiku, 2013).

As a student-centered learning strategy, PQ4R strategy allows the students to build their knowledge. The PQ4R technique has many advantages such as It is a strategy that can be applied and implemented in all educational materials; it is not limited to languages alone.

It can be implemented by students individually or collectively. This strategy makes reading a livelier process, activates previous knowledge among students, and links it to new learning with the transmission of the learning impact. In addition, it stimulates students' motivation to learn with all their mental capacities in all educational fields. It also achieves the students' confidence in their ability to participate, the positive role in learning, making them the focus of the educational process, working to increase the academic achievement of the students, allowing them to join the disciplines desired at university.

Anzul (2015) carried out research on teaching reading narrative text through PQ4R Strategy at the ninth grade of SMP Ma'arif NU 02 Jatinegara. The results of the findings showed that PQ4R Strategy as a teaching strategy was effective in teaching reading narrative text. The researcher concluded that based on the findings, PQ4R Strategy may be used as an alternative strategy in teaching reading especially in teaching reading text types so that the students can comprehend text more easily and be more interested in the reading activity. Similarly, Khasanah, Hartono, Astuti and Wahyuni (2024) carried out research on PQ4R and Reading comprehension in higher education: a data-driven examination. Results reveal a significant difference in comprehension between students taught with PQ4R and those using conventional methods. Descriptive statistics and independent samples test underscore PQ4R's effectiveness, indicating higher comprehension scores in the experimental group. These findings suggest PQ4R as a valuable tool for improving reading comprehension

in higher education, offering educators and students a roadmap for enhanced learning outcomes. Setawati and Corebima (2017) carried out a study on Improving Students' Meta-cognitive Skills through Science Learning by Integrating PQ4R and TPS Strategies at a Senior High School in Parepare, Indonesia. The results of the findings revealed that the integration of the PQ4R-TPS learning strategy affects students' meta-cognitive skills. The integration of the PQ4R-TPS learning strategy holds significantly more potential to improve students' meta-cognitive skills than the other learning strategies.

Methodology

The study was conducted using a quasi-experimental design that involved pre-test, post-test and non-equivalent control group. The design was deemed appropriate for the study because intact classes were used to avoid disrupting the regular class lesson. The study comprised of 1,969 Senior Secondary School two (SS2) students in the 18 public secondary schools in Calabar Municipality of Cross River State. The sample included 205 SS2 students drawn from three (3) co-educational schools using a simple random sampling technique. The breakdown shows that 139 (PQRST-70 and PQ4R-69) students were used for the experimental group, and the remaining 66 students were used for the control group. Students in the experimental group received four weeks of instruction using the PQRST and PQ4R techniques. Each week was divided into two (double) periods of 40 minutes each based on the school's time table. The control group was taught using a traditional lecture method, which included a content-rich activity such as lectures, for four weeks, with the same set of activities repeated for both double periods.

Data were collected using a Reading Comprehension Performance Test (RCPT) adopted from the New Concept English for Senior Secondary Schools Book 2 (Revised Edition), which included 25 multiple-choice items with four options (A to D) developed by the researcher. Two specialists assessed the instrument's face and content validity, and reliability was tested using Kuder Richardson 20 (KR-20), yielding a coefficient of 0.86. The instrument was initially administered as a pre-test, scored, and kept without providing any feedback to the students. Following the treatment, the same test was reshuffled and administered as a post-test. The researcher scored both tests to avoid bias, and the items were scored dichotomously. The correct options received one mark each, while the incorrect options received zero marks. The obtained results were used to conduct analyses. The research questions were answered using mean and standard deviation (SD), and the hypotheses were tested using ANCOVA.

Results

Hypothesis one: There is no significant effect of PQRST reading technique on students' performance in reading comprehension.

Table 1: One-way Analysis of Covariance (ANCOVA) on the effect of students' scores in PQRST reading technique and students' performance in Reading Comprehension.

Source	Type III Sum of Squares	Df.	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	637.716 ^a	2	318.858	19.244	.000	.224
Intercept	1361.294	1	1361.294	82.160	.000	.382
Pre-test	540.190	1	540.190	32.603	.000	.197
Treatment	92.036	1	92.036	5.555	.020	.040
Error	2203.666	133	16.569			
Total	48284.000	136				
Corrected Total	2841.382	135				

a. R Squared = .224 (Adjusted R Squared = .213)

The independent variable is PQRST while the dependent variable is performance in reading comprehension. The results presented in Table 1 revealed that there is a significant effect of PQRST reading technique on students' performance in reading comprehension ($F=5.555$; $p=.020$). This is because the null hypothesis tested at .05 level of significance was greater than the significance of students' scores (.020) tested using ANCOVA. Therefore, the null hypothesis which states that there is no significant effect of PQRST reading technique on students' performance in reading comprehension was rejected while the alternative hypothesis was retained at .05 level of significance. The result also shows the partial Eta squared estimate, which is a measure of effect size, as .040. This implies that treatment (PQRST technique) accounted for 40.0 percent of the variance observed in the post-test scores of students' performance in Reading Comprehension. Also, the adjusted R-squared value is .213. This suggests that about 21.3 percent of the variation in the dependent variable (performance in reading comprehension) can be accounted for by the difference in treatment and pre-test.

Hypothesis two: There is no significant effect of PQ4R reading technique on students' performance in reading comprehension

Table 2: One-way Analysis of Covariance (ANCOVA) on the effect of students' scores in PQ4R reading technique and Students' performance in Reading Comprehension.

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	528.196 ^a	2	264.098	12.312	.000	.157
Intercept	1836.700	1	1836.700	85.623	.000	.393
Pre-test	523.238	1	523.238	24.392	.000	.156
Treatment	1.131	1	1.131	.053	.819	.000
Error	2831.537	132	21.451			
Total	51867.000	135				
Corrected Total	3359.733	134				

a. R Squared = .157 (Adjusted R Squared = .144)

The independent variable is PQ4R while the dependent variable is performance reading comprehension. The results presented in Table 2 revealed that there is no significant effect of PQ4R reading technique on students' performance in reading comprehension ($F=0.053$; $p=.819$). This is because the null hypothesis tested at .05 level of significance was less than the significance of students' scores (0.819) tested using ANCOVA. Therefore, the null hypothesis which states that there is no significant effect of PQ4R reading technique on students' performance in reading comprehension was accepted while the alternate hypothesis, rejected at .05 level of significance. The results of the mean gain score have no effect on the results of the hypothesis. Therefore, the null hypothesis was accepted.

Discussion of findings

PQRST reading technique and students' performance in reading comprehension.

The findings of hypothesis one shown in table 1 revealed a significant difference in students' pre-test and post-test mean reading comprehension achievement when taught using the PQRST technique. The experimental group outperformed the conventional group on the achievement score test. The finding is in line with Wadiya (2012) that there was a significant difference in students' reading comprehension in the descriptive text which is taught by using PQRST Method with those taught by using the conventional method. The result is also in line with the findings of Haeriyanto (2012). The researcher reported that PQRST strategy can

improve students' reading comprehension skills. The students are more active in the class in terms of sharing ideas, asking and answering questions. In other words, this strategy can help the students to find out the main idea and supporting details that relate to the text.

PQ4R reading technique and students' performance in reading comprehension

The results of hypothesis two as shown in table 2 revealed that there was no significant effect of PQ4R reading technique on reading comprehension performance of secondary school students. The findings disagree with the findings of Setawati and Corebima (2017). The researchers concluded that the integration of the PQ4R-TPS learning strategy affects students' meta-cognitive skills. The integration of the PQ4R-TPS learning strategy holds significantly more potential to improve students' meta-cognitive skills than the other learning strategies. The finding also disagrees with the finding of Al-Qawabeh and Aljazi (2018) that found that there were statistically significant differences in favour of the experimental group which used PQ4R technique than the conventional group.

Conclusion

Reading techniques are strategies for improving students' reading rate and comprehension. Therefore, they are essential factors that need to be considered when trying to improve students' reading rate and comprehension. Preview, Question, Read, Summarize and Test (PQRST) respectively have significant effects on reading comprehension performance of secondary school students. Also, there was no significant effect of Preview, Question, Read, Reflect, Recite and Review (PQ4R) on senior secondary 2 students' reading comprehension performance.

Recommendations

Based on the findings of the study, the following recommendations were made:

1. PQRST reading techniques should be adopted in secondary schools to improve reading comprehension among the students. Students should be encouraged to ask themselves questions while reading. This is done to give them a broader idea of what the text/passage is talking about and make them anxious to read more and discover newer ideas in the text for themselves.
2. PQ4R reading technique should also be adopted by teachers in guiding students in secondary schools to solidify reading comprehension and academic success. Teachers should learn to check students' understanding as they read and identify terms that seem grammatically right. Making sense of the text while reading is an excellent technique to educate students on how to do so.
3. Teachers should correctly prepare and organize reading strategies to provide the desired outcome of high accomplishment while keeping in mind the difficulties connected with the application of the reading techniques.

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