

Effect of Cooperative Instructional Strategy on Reading Comprehension Performance of Public Secondary School Students in Abuja, Nigeria

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Abstract

This study investigated the effect of cooperative instructional strategy on reading comprehension performance of public secondary school students in Abuja, Nigeria. The study determined the difference in the reading performance of students taught using cooperative instruction and the regular classroom teaching strategy of chalk and board at the literal, inferential and critical levels of the reading comprehension. A pre-test, post-test, non-randomised quasi-experimental design was adopted for the study involving intact experimental and control groups. Four research questions were raised. Through simple random sampling technique (Lottery method), 66 Senior Secondary School students in penultimate class were involved from two co-educational schools in the Federal Capital Territory, Abuja. Data were collected using test items adopted from the reading comprehension sections of the West African Examinations Council. Mean statistics was used to answer the research questions. Analysis of collated data indicated presence of significant difference in the reading performance of secondary school students exposed to cooperative and conventional instructional strategies at literal and inferential comprehension. However, significant difference does not exist between the two groups at the critical comprehension level. The study, therefore, recommends increased teachers' commitment and use of combined strategies for teaching reading comprehension; and adoption of metacognitive cues like schema, organiser to enable students take charge of their comprehension.

Keywords: *Critical comprehension, Inferential comprehension, Literal comprehension, Reading Skill, Reading Test.*

INTRODUCTION

Fostering effective reading skills as a goal of teaching English language is often a challenging task, where students are expected to read and comprehend lots of detailed information. Learners in English as a Second Language (ESL) context like Nigeria, where the language is the medium of instruction across levels of the nation's education and expression, need English as a means of meaningful communication and learning. There is the need, therefore, to provide students with opportunity to learn or access optimum comprehension from texts through classroom interaction and develop effective reading skill. This is important since after the initial learning to read, will have to read to learn, for the rest of their living.

Reading comprehension is the process of extracting meaning from written text (Marpaung & Sihombing, 2021). It is viewed as the ability to process written text, understand its meaning,

and integrate with what the reader already knows (Al Seyabi & Tuzlukova, 2015); it is a critical skill that influences students' academic success and their ability to navigate complex demands of the information age (Schleicher, 2019). Reading comprehension, therefore, has always been a requisite skill in academic success for of its role in the process of imparting knowledge, enhancing the academic development of the learners and preparing learners for impactful research procedures, socio-interaction and life-long learning.

Reading comprehension strategies involves interactions between the reader and the text, using multiple skills (Oczkus, 2018). On use of strategies, some work for some categories of students, while they do not for others. Also, some strategies work best with certain types of reading material, while other strategies work best with some others (McNamara & Kendeou, 2022).

Ghafournia (2023) submit that reading comprehensibility directly depends on the strategies readers use. Strategies are especially necessary for students in ESL context, where some struggle to read. Using strategies during and after reading allows readers to connect the information they are reading with their schemata (Iliyas, 2022). Strategy is deliberate, goal-directed attempts to control and modify reader`s efforts to decode text, understand words, and construct meanings (Banditvilai, 2020).

Ijoko et al. (2024) point to the word cooperative as derived from cooperation: working together to accomplish shared goals. When cooperating, individuals work to achieve outcomes that benefit themselves and all other group members. Cooperative learning exists when small groups of students work to enhance their own and their mates' learning. Cooperative instructional strategy is when learners maximize the use of active activity involving small groups of learners in the class (Gillies, 2016).

Cooperative instructional strategy exposes students to a variety of ideas and perspectives, stimulates learning and creativity; and engages learners in critical thinking to deepen their reading comprehension. Each member, in a cooperative learning group has an assigned role such as Leader, Clunk Expert, Gist Expert, and Question Expert (Klingner et al. 2015). Individual learner's assigned task is very specific as each is responsible for her own learning and the group's learning. With this design, students engage in higher-level thinking beyond what they could have accomplished on their own. Participants learn effective comprehension

techniques from their peers as the strategy use is observable and relevant (Gillies, 2016). Iliyas et al. (2017) submit that research on language learning strategy is meant to (a) determine strategy employed by high and low achiever students; (b) to evolve strategy clues for low achieving learners that can stimulate them to become high achieving language learners.

Accounts of secondary school students' inadequate reading comprehension has been severally documented including by the joint West African Examination Council (WAEC Chief Examiner Reports, 2024). The experience of the researchers too as teachers of students have revealed instances of poor comprehension from reading, which has constrained students' performance in English language learning, and limit independent reading to learn across the curriculum. Several of the students taught find it difficult to predict, summarize, infer, question, find meaning to unfamiliar words and identify main ideas from the text. These inadequacies have denied students the opportunity to comprehend reading of passages in English language. This study was, therefore, designed to determine the utility of cooperative instructional strategy on reading comprehension of public secondary school students in Federal Capital Territory, Abuja, Nigeria.

The study was aimed at finding out the general performance of public secondary school students in reading comprehension upon exposure to cooperative instructional strategy (experimental group); and at literal, inferential and critical levels. It will also determine the reading comprehension performance of others (control group) not exposed to conventional (chalk and board) instructional strategy at the same levels as the experimental group.

Research Questions

The following research questions were answered in this study:

- i What is the general performance of secondary school students in reading comprehension in Abuja taught using the cooperative instructional and those taught using the conventional strategies?
- ii Does reading comprehension performance of secondary school students taught using cooperative instructional and those taught with the conventional strategies at literal level in Abuja?

- iii What is the reading comprehension performance of secondary school students taught with cooperative instructional and those taught using the conventional strategies at inferential level in Abuja?
- iv How will public secondary school students in Abuja perform in reading comprehension upon exposure to cooperative instructional and those taught using the conventional strategies at the critical level?

Hypotheses

The following null hypotheses were tested at 0.05 level of significance:

- H₀₁: There will be no significant difference in students' mean gain scores at literal reading comprehension based on exposure to cooperative and conventional instructional strategies.
- H₀₂: Significant difference does not exist in students' mean gain scores at inferential reading comprehension based on exposure to cooperative and conventional instructional strategies.
- H₀₃: There will be no significant difference in students' performance mean gain scores at critical reading comprehension based on exposure to cooperative and conventional instructional strategies.

THEORETICAL FRAMEWORK

This study is guided by Bandura's (1986) Social Learning theory that Iliyas, et al. (2017) deployed in describing self-efficacy as derived from:

- a) mastery experiences (relating to inspiration derived from previous activities, especially successful ones);
- b) vicarious experiences (sourced from social models like what other people have, or are doing);
- c) social persuasion (clear words of encouragements that strengthen confidence and spurs action);
- d) inferences drawn from physiological states (impressions made of mood, pain, stress and emotion about a specified task) (p. 4).

Iliyas et al. (2017) draw the relatedness of self-efficacy, cognition, motivation and critical thinking as sources of impetus for writing efficiency, especially in English as a Second Language (ESL) classroom. A combination of tenets of the above, therefore, constitute the

application of the cooperative instructional strategy as can be deployed for the teaching of reading comprehension in secondary schools in Abuja, Nigeria.

PROCEDURES

This research adopted a pre-test, post-test, non-randomised control group quasi-experimental design. The study involved intact classes for all groups of participants (both experimental and control groups) to detract from interruption of the regular school schedules and guide against intervention of extraneous variables. Outcomes of pre-test and post-test were used as co-variate to determine mean gain scores between participants taught reading comprehension with cooperative instructional strategy and those taught using conventional instructional strategy. The two groups in the study took pre-test a week before the reading comprehension instruction starts with participants in the experimental group exposed to cooperative instructional strategy for six weeks, while those in the control group were taught reading comprehension using the conventional instructional strategy of teacher's talk and chalkboard style for same period. Post-test was administered on the participants which was a repeat of the same items used at the pre-test level, but the items' serial numbers shuffled.

The participants consisted of 66 senior secondary school students (SS2) from two co-educational public secondary schools in the Federal Capital Territory, Abuja. Simple random sampling (lottery method) was employed to randomly select two Area Councils out of the six administrative Area Councils of Abuja; then through 'hat' and 'draw' random sampling technique, two schools were drawn from wrapped lists of secondary schools in the two Area Councils earlier selected. The study thereafter used purposive intact class sampling, where the intact classes in the two selected public secondary schools were used for the experimental and control groups. The sample size of the experimental and control groups was the number of students in the intact classes chosen. The first intact class, experimental group, comprised 34 students (15 males and 19 females), while the control group comprised 32 students (18 males and 14 females).

The instrument for this study was a reading comprehension test tailored to the contents of the English language subject taken by all students in the senior secondary school SS2 class to evaluate the effectiveness of the cooperative instructional strategy in the teaching of reading comprehension. The reading comprehension section of the West African Examination Council

(WAEC) examinations titled Senior School Certificate Examinations (SSCE) for the years 2023 and 2022 were adopted to measure participants’ reading comprehension test performance in the pre-test and post-test in this study. The analysis of data gathered for this study was Mean scores of students in the pre-test and post-test assessments administered. The research questions were answered using mean statistics and the mean scores were compared to establish where significant different lies in the performance of both experimental and control groups.

Research Question 1: What is the general reading comprehension performance mean scores of public secondary school students taught using the cooperative and conventional instructional strategies in Abuja?

Table 1: Means of Reading Performance of Public Secondary School Students Taught Using Cooperative and Conventional Instructional Strategies

Group	Test	Mean Score	Mean Gain	Minimum Score	Maximum Score	Remark
Cooperative	Pre-test	33.28	16.25	15.00	50.00	Positive
	Post-test	49.53		40.00	62.00	
Conventional	Pre-test	15.38	12.18	1.00	32.00	Positive
	Post-test	27.56		3.00	54.00	

The difference in the mean and mean gain scores of public secondary school students taught using cooperative and conventional instructional strategies is shown in Table 1. The pre-test mean score for the cooperative instructional strategy is 33.28, while the post-test is 49.53. With respect to the conventional instructional strategy, the pre-test mean score is 15.38, while the post-test is 27.56. The Table shows both groups record higher scores and improvement at post-test.

Research Question 2: What difference exists in the mean scores of public secondary school students’ reading comprehension performance at literal level of exposed to cooperative and conventional instructional strategies in Abuja?

Table 2: Means of Performance of Public Secondary School Students at the Literal Level Exposed to Cooperative and Conventional Instructional Strategies

Group	Test	Mean Score	Mean Gain	Minimum Score	Maximum Score	Remarks
Cooperative	Pre-test	68.75	18.75	18.00	72.00	Negative
	Post-test	50.00		5.00	65.00	
Conventional	Pre-test	21.88	28.12	2.00	32.00	Positive
	Post-test	50.00		3.00	75.00	

The mean performance of public secondary school students at the literal level of reading comprehension taught using cooperative indicated no gain but a reduction from 68.76 at pre-test and 50.00 at post-test. For conventional instructional strategy, however, the mean performance of the students was lower in pre-test (21.88) but improved at post-test (68.75).

Research Question 3: What difference exists in the mean scores reading comprehension performance of Public Secondary School Students at inferential level upon exposure to cooperative and conventional instructional strategies in Abuja?

Table 3: Means of Performance of Public Secondary School Students at Inferential Level taught using Cooperative and Conventional Instructional Strategies

Group	Test	Mean Score	Mean Gain	Minimum Score	Maximum Score	Remark
Cooperative	Pre-test	15.63	34.37	4.00	26.00	Positive
	Post-test	50.00		3.00	86.00	
Conventional	Pre-test	6.25	28.74	1.00	9.00	Positive
	Post-test	21.88		3.00	25.00	

Table 3 shows the pre-test and post-test performance of students exposed to cooperative instructional strategy to have yielded 34.37 gain score and conventional instructional strategy yielding 28.74 gain score, which indicate both groups experience positive outcomes at inferential level of reading comprehension

Research Question 4: Does any difference exist in the mean scores at critical level in the reading comprehension performance of public secondary school students exposed to cooperative and conventional instructional strategies in Abuja?

Table 4: Means of Performance of Public Secondary School Students at the Critical Level taught using Cooperative and Conventional Instructional Strategies

Group	Test	Mean Score	Mean Gain	Minimum Score	Maximum Score	Remark
Cooperative	Pre-test	15.63	28.12	3.00	22.00	Positive
	Post-test	43.75		4.00	66.00	
Conventional	Pre-test	3.13	18.75	1.00	10.00	Positive
	Post-test	12.5		1.00	25.00	

Table 4 shows performance at the pre-test and post-test students’ reading comprehension performance upon exposure to cooperative instructional strategy with 28.12 gain score; and those taught with conventional instructional strategy with 18.75 gain score. The results indicate both groups record positive gains at the critical level of reading comprehension.

Hypotheses

The following null hypotheses were formulated and tested at 0.05 level of significance:

Ho1: *There will be no significant difference in students’ gain scores at literal level of reading comprehension based on exposure to cooperative and conventional instructional strategies.*

Table 5: Analysis of Covariance for the performance of students at literal level introduced to Cooperative and Conventional Instructional strategies

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	68.524 ^a	1	68.524	13.745	.003
Intercept	502.782	1	502.782	100.853	.000
Pretest	68.524	1	68.524	13.745	.003
Literal	.000	0	.	.	.
Error	64.809	30	4.985		
Total	5175.000	31			
Corrected Total	133.333	62			

Significance level= 0.005

The analysis of covariance on the performance of public secondary school students reading comprehension at literal level in Abuja taught with cooperative and conventional instructional strategies as shown in Table 5 F 13.74 and Sig. 000 indicate there is significant difference in the performance of participants in the two groups. It implies, therefore, that significant difference exists in the secondary school students’ reading comprehension at literal level based on been taught using cooperative and conventional strategies in FCT, Abuja.

Ho2: Significant difference does not exist in students’ gain scores at inferential level of reading comprehension based on exposure to cooperative and conventional instructional strategies.

Table 6: Analysis of Covariance for the Performance of Students at Inferential level introduced to Cooperative and Conventional Instructional Strategies

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	50.533 ^a	1	50.533	4.085	.064
Intercept	186.226	1	186.226	15.056	.002
Pretest	50.533	1	50.533	4.085	.064
Inferential	.000	0	.	.	.
Error	160.801	30	12.369		
Total	2138.000	31			
Corrected Total	211.333	62			

Analysis of covariance on performance of public secondary school students in inferential reading comprehension upon been taught using cooperative and conventional strategies is shown in Table 6 as F 4.085 and Sig. .002. It implies that significance difference truly exists in the performance of students taught reading comprehension using cooperative and those taught using conventional instructional strategies in secondary schools in Abuja.

Ho3: There will be no significant difference in students’ gain scores, at critical level, of reading comprehension based on exposure to cooperative and conventional instructional strategies.

Table 7: Analysis of Covariance on the Performance of Students at Critical Level upon been Taught Using Cooperative and those with Conventional Instructional Strategies

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	212.521 ^a	1	212.521	16.696	.001
Intercept	1.860	1	1.860	.146	.708
Pretest	212.521	1	212.521	16.696	.001
Critical	.000	0	.	.	.
Error	165.479	30	12.729		
Total	1113.000	31			
Corrected Total	378.000	62			

Table 7 reveals the analysis of covariance on the performance of public secondary school students in Abuja at critical reading comprehension based on been taught using cooperative and those taught with conventional instructional strategies as F. 16.696 and Sig .708. Therefore, it is clear significance difference does not exist in the performance of students taught critical reading comprehension with cooperative and those taught with conventional instructional strategies.

DISCUSSION OF FINDINGS

The study found that the control group also record improved reading comprehension with the use of conventional reading instructional strategy. This outcome can be traced, possibly to attention and monitoring given to the instructional process by the teacher/ researcher. It implies that with demonstrated commitment to instructional delivery, students can attain improved reading comprehension regardless of which strategy used in lesson delivery. This finding is in agreement with those of (Iliyas & Olanipekun, 2024 & Leino et al. 2021) that teachers' competence can ease barriers to students learning; and that the qualities of the teacher and instructions matter most in students' achievements from instructional delivery.

The study found presence of significant difference in the reading comprehension performance of public secondary school students exposed to cooperative and the other group on conventional instructional strategies at both literal and inferential levels. That significance difference exists at fact-based (literal) and interpretive (inferential) levels may be due to the prevailing group influence in cooperative instruction, where the meaning canvassed by the most focal member of the group can be adopted as true meaning by all. Member with dissenting comprehension of what is read can be subdued by mob influence or decide to keep her comprehension to herself. These findings are agreed with earlier studies like Ugwu (2019) on student team achievement division and think=pair share instructional strategies impacted improvement in secondary school students' reading comprehension performance than the traditional teacher dominated reading teaching in Benue State. However, the study did not observe improvements across gender. Iheanyichukwu et al. (2022) found cooperative instructional strategy improved students study habit than conventional study approach. Just as studies in other clime outside Nigeria found cooperative instructional study group outperformed other study groups (Mustamir et al., 2023 & Widiastuti, 2024).

On lack of significance found at the level of critical reading comprehension of secondary school students upon been taught with cooperative and conventional instructional strategies, Vega et al. (2012) found that students constructing inferential comprehension goes beyond what instructional strategy used to facilitate reading skill, but dependent on other factors like cognitive processes, summary and elaboration skills. They found that it is in such processes that the students bring previous experience, reflect at higher level abstraction and formulate hypothesis to draw meaningful critical comprehension. So, mere involvement of colleagues in the process of reading and validating comprehension would not change extent of comprehension between the two strategies since relatively the cooperating group have the same experience and are exposed to the same of reading materials. Individualized conceptualization of reading may provoke a deeper deployment of critical thinking required for critical reading comprehension. The findings of Lawal

and Ahman (2022) resonate with this study's finding that critical or evaluative reading comprehension is considered the highest level of comprehension that demands greater cognition including both schemata and diversified worldview, which only very few students at that that might have mastered, hence the lack of significant different between the experimental and the control group in the analysis.

CONCLUSION

This study evaluated the effect of cooperative instructional strategy on secondary school students' reading comprehension performance involving the experimental and the control group. With the findings of the study, it is logical to conclude that even though cooperative instructional strategy offers greater advantage over the conventional approach to teaching reading comprehension, it is however desirable to deploy a combination of strategies to facilitate reading comprehension at the college level for an all-round comprehension across the domains of reading. This position is justified on the discovery that although cooperative reading instruction offers higher performance in students' comprehension but not to the point of inspiring noticeable difference at critical comprehension level. This critical level is most desirable for students from the college level, so they can read to draw informed comprehension beyond just by the line but across the lines of what is read.

RECOMMENDATIONS

Deriving from the findings of the study, the following are therefore, the study's recommendations:

- i Teachers as facilitators of knowledge on students should be better prepared in person and materials that can assist the understanding of instructions by students. A well prepared and endowed teacher will, undoubtedly, inspire higher reading comprehension irrespective of strategy employed.
- ii The students should be adequately prepared to fairly share responsibilities in the use of cooperative reading strategy by the teacher. Ensuring this can lead to the attainment of pair influenced comprehension by which it will not be that the entire group will simply the comprehension of the most vocal participants as the only correct interpretation of what is read. Each participant can contribute their thoughts and together and more thoughtful comprehension would be shared.
- iii Teachers of reading comprehension should diversify instructional strategy deployed in teaching to include such cognition inspired approaches like the infusion of schemata, advance organiser,

and during-reading questions to make secondary students take charge of their reading, monitor their comprehension and bring metacognitive skills to aid them in the process.

- iv In-house training of teachers of English in the schools, sponsorship to participate in workshops by school proprietors and principals will sharpen the teaching skills of the teacher to make them dynamic facilitators of students to become masters of the reading to learn expected of their status as they further their studies.

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