

**RELATIVE EFFECTIVENESS OF COOPERATIVE LEARNING AND
DEMONSTRATION TEACHING METHODS ON STUDENTS' ACADEMIC
ACHIEVEMENT IN ENGLISH LANGUAGE**

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Abstract

This study investigated the relative effectiveness of cooperative learning and demonstration teaching methods on students' academic achievement in English language. Four research questions guided the study while six null hypotheses were formulated. The design of the study is quasi-experimental design. Specifically, it used pre-test post-test non-equivalent control group design. The population of the study consisted of (3450) senior secondary school 2 students from 8 secondary schools randomly selected in Awka North Local Government Area of Anambra State. The sample size for this study comprises 228 SS2 students from different schools in Awka North Local Government Area. The multi-stage sampling and simple random sampling technique were adopted. English Achievement Test (EAT), were used. The instruments were validated by three experts. Two experts from the department of English Language and one from the department of educational foundations (measurement and evaluation) Nnamdi Azikwe University, Awka. Cronbach Alpha was used to check the internal consistency of items with dichotomous choices in the EAT and the reliability co-efficient of .82 was obtained. Mean and standard deviation was used to answer the research questions while analysis of covariance (ANCOVA) was used to test the hypotheses. The findings amongst others revealed that the mean achievement scores of students taught English Language with cooperative teaching method is higher than those taught using the demonstration teaching method, the mean achievement scores of male students taught using cooperative teaching method is higher than their female counterparts taught using the same method among others. Based on the findings, it was recommended amongst other that English Language learning teachers should adopt the use of CTM in English Language classes so as to help improve the interest and achievement of students in English language.

Keywords: Relative Effectiveness, Cooperative Learning Method, Demonstration Teaching Methods, Academic Achievement, English Language

Introduction

Education is widely regarded as the cornerstone for holistic human development and the bedrock of any nation's progress. It is through quality education that individuals can unlock their full potentials, develop essential knowledge, skills and values, and become productive members of society. Education enables economic growth, social transformation, and political stability within a nation. It empowers people to think critically, make informed decisions and drive positive change. Given education's paramount importance, every nation strives to build an effective educational system that facilitates impactful teaching and learning.

At the secondary level, students undergo a critical stage of language development. (Fafunwa, 2018). Here, foundational English language skills are honed and refined. By focusing on the secondary level, the study addresses a crucial phase in students' educational journey, where interventions can significantly impact their overall academic achievement and future opportunities. This emphasis on English language instruction at the secondary level underscores the study's relevance and its potential to inform pedagogical practices and policies aimed at improving English language education in Anambra State. Therefore, it is imperative to understand the effectiveness of different teaching methods, such as cooperative and demonstration techniques, in enhancing English language learning outcomes at this pivotal stage.

Despite the prevalence of traditional teaching methods in Nigerian schools, their limitations prompt educators to seek more effective pedagogical approaches. Recognizing the drawbacks of teacher-centered instruction, characterized by passive learning and limited student engagement (Lancaster, 2017; Wang *et al.*, 2019), educators are exploring alternative methods that foster active participation, critical thinking, and collaborative skills essential for success in today's interconnected world (Teo, 2019). This quest for more effective teaching strategies has led to increased interest in student-centered approaches such as cooperative learning and demonstration methods.

Cooperative learning is a pedagogical approach that emphasizes collaboration, interdependence, and active participation among students to achieve common learning goals (Silva *et al.*, 2021). Millis (2023) asserted that it involves structured group activities where students work together to complete tasks, solve problems, and deepen their understanding of academic content. Unlike traditional competitive or individualistic learning approaches, cooperative learning promotes positive interdependence, where students perceive that they can reach their goals only by working together and supporting one another (Johnson & Johnson, 2018a). Key principles include positive interdependence, individual accountability, equal participation, and simultaneous interaction (Astuti & Barratt, 2018). Alrayah (2018) highlighted specific strategies used in cooperative learning include think-pair-share, jigsaw, three-step interview, and numbered heads together. These promote active learning through activities that require peer discussion, joint problem-solving, and construction of knowledge.

On the other hand, demonstration methods are grounded in the theoretical perspectives of social cognitive theory and information processing models. They involve the teacher explicitly modelling target skills, procedures or concepts while students observe and analyze the step-by-step process (McLain, 2021). Key strategies include live modelling, multimedia presentations, and guided practice with feedback (Yousafzai, 2024). McLain (2022) asserted that demonstration approaches allow for vicarious learning by showcasing the proper techniques and thought processes. Students can then apply what was modelled through structured practice activities.

Statement of the Problem

Anambra State is grappling with declining literacy rates, which pose a significant threat to the academic achievement and future prospects of senior secondary students, particularly in English language proficiency. Despite concerted efforts to bridge educational disparities and enhance teaching methodologies, the effectiveness of traditional instructional approaches in fostering English language mastery remains a concerning issue.

The gravity of this problem is multifaceted. Firstly, dwindling literacy levels among senior secondary students underscore the urgent need for innovative and evidence-based teaching approaches that can reverse this trend and bolster English language learning outcomes. Secondly, in an increasingly globalized world, proficiency in English is pivotal for academic success, socioeconomic mobility, and professional advancement, underscoring the importance of identifying and implementing effective instructional methods. Moreover, the paucity of research comparing the relative efficacy of cooperative and demonstration teaching methods specifically for English language instruction in Anambra State's senior secondary schools represents a significant gap in the existing literature.

Consequently, investigating the relative effectiveness of cooperative and demonstration teaching methods on the academic achievement of Anambra State's senior secondary students in English language is of paramount importance. By elucidating the strengths, limitations, and impacts of each method on student learning outcomes, this research aims to inform evidence-based pedagogical practices and contribute to the enhancement of English language education in Anambra State's senior secondary schools. Ultimately, addressing this problem has the potential to reverse declining literacy trends, unlock academic and professional opportunities for students, and drive socioeconomic progress within the state and beyond. Therefore, this study seeks to determine the relative effectiveness of cooperative and demonstration teaching methods on students' academic achievement in English Language in Anambra state.

Purpose of the Study

The primary purpose of this study is to determine the relative effectiveness of cooperative and demonstration teaching methods on students' academic achievement in Anambra state. Specifically, this study seeks to determine the:

1. difference in the pre-test and post-test mean achievement scores of students taught English Language with cooperative learning and demonstration teaching method
2. difference in the pre-test and post-test mean achievement scores of male and female students taught English language with cooperative learning method

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3. difference in the pre-test and post-test mean achievement scores of male and female students taught English language with demonstration teaching method.
4. whether there is significant difference in the mean achievement scores of students taught English language with cooperative learning method and demonstration teaching method.
5. whether there is significant difference in the mean achievement scores of male and female students taught English language with cooperative learning method.
6. whether there is significant difference in the mean achievement scores of male and female students taught English language with demonstration teaching method.

Research Questions

The following research questions will guide the study

1. What is the difference between the pre-test and post-test mean achievement scores of students taught English Language using cooperative learning method compared to those taught using demonstration teaching method?
2. What is the difference in the pre-test and post-test mean achievement scores of male and female students taught English language using cooperative teaching method?
3. Is there a difference in the pre-test and post-test mean achievement scores of male and female students taught English language using demonstration teaching method?

Hypotheses

The following null hypotheses will be tested at 0.05 level of significance

1. There is no significant difference in the mean achievement scores of students taught English language with cooperative learning method and demonstration teaching method.
2. There is no significant difference in the mean achievement scores of male and female students taught English language with cooperative learning method.
3. There is no significant difference in the mean achievement scores of male and female students taught English language with demonstration teaching methods.

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Method

This chapter presents the procedure used in carrying out the study under the following subheadings: research design, the population of the study, sample and sampling techniques, instrument for data collection, validation of instrument, reliability of instrument, experimental procedure; control of extraneous variables and method of data analysis. The study utilized a quasi-experimental design, specifically employing a nonrandomized pre-test post-test control group design. As stated by Nworgu (2015), a quasi-experimental design involves the utilization of intact or pre-existing groups, as opposed to random subject allocation.

Table 1: Distribution of Participants into Experimental Groups

	Pre- test	Treatment	Post- test
NR Experimental Group 1	O1	X1	O2
NR Experimental Group 2	O1	X2	O2

Where;

O1- Pre-test

O2–Post-test

X1- Experimental Treatment (Cooperative learning)

X2- Experimental Treatment (Demonstration teaching method)

NR- Non-randomized

The study was conducted in Anambra State, located in the south eastern region of Nigeria, with its capital and seat of government in Awka. Anambra State comprises 21 Local Government Areas and is bordered by Delta State to the west, Imo State to the south, Enugu State to the east, and Kogi State to the north. With a population of 4,055,048 people according to the last census (NPC, 2006) and a land mass of 1,870 square meters, Anambra State is endowed with abundant natural resources including natural gas, crude oil, bauxite, and ceramic, along with nearly 100 percent arable soil. The state boasts several tourist attractions such as the Ogbunike Caves, Igbo Ukwu Museum, and Rogeny Tourist Village in Oba, offering recreational activities. Anambra State also celebrates

rich cultural festivals including the ImoAwka Festival in Awka, Achukwu Festival in Ekwulobia, New Yam Festival, Mmanwu Okija Masquerade Dance, and Nwafor Festival in Ogidi and Ogbunike. Additionally, Awka, the state capital, serves as a hub for Nigeria's carving industries. Educationally, Anambra State is renowned for its excellence, housing prestigious government owned tertiary institutions such as Nnamdi Azikiwe University in Awka, Odumegwu Ojukwu University with campuses in Uli and Igbariam, the Federal Polytechnic in Oko, and Nwafor Orizu University of Education in Nsugbe. Anambra State is recognized for its high-quality educational institutions, making it an ideal location to study academic achievement and teaching methodologies. However, it's important to note that the state is currently grappling with issues of out-of-school children and low enrolment rates, which may impact educational outcomes and necessitate further investigation into effective teaching methods to address these challenges.

The population of the study consisted of (3450) senior secondary school two students from 8 secondary schools randomly selected in Awka Local Government Area of Anambra State (Source of data: Post Primary School Service Commission Awka Zone – 2022). A sample of 228 SSS 2 students was utilized for the study. To ensure representation, a systematic multi - stage sampling approach was employed. The instrument utilized for data collection in this study was English Achievement Test (EAT), adapted from the content of New Concept English for SSS Book 2 by the researcher. Designed in alignment with a comprehensive six-week lesson plan, the EAT comprises 40 multiple-choice items, each offering four options for selection.

The researcher administered both as a pre-test and a post-test, the EAT allows for a comprehensive evaluation of the participants' achievement levels over the course of the study. The instrument for data collection underwent a rigorous validation process conducted by three experts. Two experts from the Department of English Language, Nnamdi Azikiwe University and one expert from Educational Foundations (Measurement & Evaluation). Each validator was provided with the study's topic, purpose, research questions, hypothesis, and the SS2 scheme of work on phrasal verbs.

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Before the commencement of the main study, a trial testing phase was conducted to assess the feasibility and effectiveness of the research instruments and procedures. This phase aimed to identify any potential challenges, refine the research methodology, and ensure the validity and reliability of the study. The participants chosen to establish the reliability index was selected from co -educational public secondary schools in Imo State, which were not part of the main study. The primary instrument for data collection was the English Achievement Test (EAT). Administered by the researcher and the teachers (the research assistants), the EAT served as both the pre-test and post-test for the students in the experimental groups. The entire experimental duration spanned six weeks, with post-tests collected at the conclusion of this period.

The experimental procedures was conducted in several stages:

STAGE 1: Briefing the Research Assistant.

STAGE 2: Pre-testing.

STAGE 3: Teaching of the Students.

STAGE 4: Post-testing.

Several measures will be implemented to control extraneous variables in this study. Such as Test Knowledge, Initial Group Difference, Teacher Variable, Hawthorne Effect and Experimental Bias.

The collected data was analyzed using statistical analysis utilizing measures of central tendency such as mean and dispersion measures like standard deviation to address the four research questions posed. Additionally, the six hypotheses was tested at a significance level of 0.05 using Analysis of Covariance (ANCOVA), allowing for the examination of group differences while controlling for pre-existing variations among the groups.

At a significance level of 0.05, the decision rule for hypothesis testing was as follows: If the p-value obtained from the ANCOVA analysis is less than 0.05, the null hypothesis was rejected, indicating a statistically significant difference between the experimental and control groups. Conversely, if the p-value is greater than or equal to

0.05, the null hypothesis was retained, suggesting no significant difference between the groups. This signifies whether the teaching method has a statistically significant effect on improving students' post-test achievement. At 0.05, the null hypothesis was retained, suggesting no significant difference between the groups. This signifies whether the teaching method has a statistically significant effect on improving students' post-test achievement.

Results and Discussion

In this chapter, the data collected from the field for this study were analyzed and the summaries were presented in tables to highlight the findings. The presentation was sequentially done starting with the answers to the research questions and testing of hypotheses at 0.05 alpha level.

Research Question 1: What are the difference between the pre-test and post-test mean achievement scores of students taught English Language using cooperative learning method compared to those taught using demonstration teaching method?

Table 1: Mean Achievement Scores of SS 2 Students Taught English Language using Cooperative Teaching Method (CTM) and those Taught using the Demonstration Teaching Method (DTM)

Group	N	Pre-test		Post-test		Mean gain
		X	SD	X	SD	
CTM	101	16.47	2.01	28.66	1.96	12.19
DTM	126	10.46	2.22	20.36	2.12	9.90
Mean Difference		6.01		8.30		2.29

Table 1 shows that students taught with cooperative teaching method had 16.47 as the pre-test mean score and 28.66 as the post-test mean score with 2.01 and 1.96 respectively as their standard deviation with a gain in mean of 12.19. The demonstration teaching method had 10.46 as the pre-test mean score and 20.36 as their post-test mean with 2.22 and 2.12 respectively as their standard deviation, with a gain in mean of 9.90. The analysis revealed that the mean achievement scores of students taught with cooperative teaching method is higher than those taught using the demonstration teaching

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method because the gain in mean of 12.19 for the experimental group is greater than 9.90 gain in mean for the control group. The mean difference is 2.29 in favour of experimental group. The standard deviation of 1.96 for the experimental group is smaller than the 2.12 for the control group. This implies that the post-test mean achievement scores of the experimental group is more homogenous than that of the control group.

Research Question 2: What are the difference in the pre-test and post-test mean achievement scores of male and female students taught English language using cooperative learning method?

Table 2: Mean Achievement Scores of Male and Female Students taught English Language using CTM

Gender	N	Pre-test		Post-test		Mean gain
		X	SD	X	SD	
Male	48	24.50	2.06	48.54	2.01	24.04
Female	54	20.96	2.40	42.34	2.12	21.38
Mean Difference		3.54		6.20		2.66

Data analysis in Table 2 reveals that the male students had mean scores of 24.50 and 48.54 for their pre-test and post-test respectively with standard deviation scores of 2.06 and 2.01 for their pre-test and post-test scores. Also, female students had mean scores of 20.96 and 42.34 for their pre-test and post-test respectively with standard deviation scores of 2.40 and 2.12 for their pre-test and post-test scores. The gain in mean of 24.04 for male students was higher than that of their female counterpart with 21.38 gain in mean. This means that the mean achievement scores of male students taught using cooperative teaching method is higher than their female counterparts taught using the same method. The post-test standard deviation of (2.01) for the male students is lower (2.12) than that of the female counterpart which shows a more uniform distribution of scores for the male students.

Research Question 3: Is there a difference in the pre-test and post-test mean achievement scores of male and female students taught English language using demonstration teaching method?

Table 3: Mean Achievement Scores of Male and Female Students taught English Language using DTM

Gender	N	Pre-test		Post-test		Mean gain
		X	SD	X	SD	
Male	60	26.64	2.66	34.56	2.21	7.92
Female	66	24.72	2.46	32.31	2.23	7.59
Mean Difference		1.92		2.25		8.33

Data analysis in Table 3 reveals that the male students had mean scores of 26.64 and 34.56 for their pre-test and post-test respectively with standard deviation scores of 2.66 and 2.21 for their pre-test and post-test scores. Also, female students had mean scores of 24.72 and 32.31 for their pre-test and post-test respectively with standard deviation scores of 2.46 and 2.23 for their pre-test and post-test scores. The gain in mean of 7.92 for male students was higher than that of their female counterpart with 7.59 gain in mean. This means that the mean achievement scores of male students taught using demonstration teaching method is higher than their female counterparts taught using the same method. The post-test standard deviation of (2.21) for the male students is lower (2.23) than that of the female counterpart which shows a more uniform distribution of scores for the male students.

Test of Statistical Hypotheses

Null Hypothesis 1 (H₀₁): There is no significant difference in the mean achievement scores of students taught English language with cooperative and demonstration teaching method.

Table 4: ANCOVA test of significant difference between the mean achievement scores of students taught English Language using cooperative teaching method and the demonstration teaching method

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	1700.332 ^a	2	425.083	135.821	.000
Intercept	1792.021	1	1792.021	572.581	.000
Achievement	297.305	1	297.305	56.184	.000
Treatment	1634.888	1	1634.888	555.374	.000
Error	901.361	289	3.130		
Total	109366.000	292			
Corrected Total	2601.693	291			

a. R Squared = .654 (Adjusted R Squared = .649)

Table 4 reveals a significant main effect of learning method on mean achievement scores of SS 2 students taught English Language; $F(1,291) = 555.374$, $P = 0.0001 < 0.05$. Therefore, the null hypothesis is rejected, therefore, there is significant difference in the mean achievement scores of students taught English language with cooperative and demonstration teaching method.

Null Hypothesis 2 (H₀₂): There is no significant difference in the mean achievement scores of male and female students taught English language with cooperative teaching method.

Table 5: ANCOVA Test of Significant Difference in the Mean Achievement Scores of Male and Female Students taught English Language using CTM

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	1014.434 ^a	2	407.217	102.108	.000
Intercept	1336.755	1	1336.755	390.385	.000
Achievement	211.098	1	211.098	67.876	.000
Gender	14.244	1	14.244	4.160	.064
Treatment	7.982	1	7.982	1.502	.000
Error	558.144	143	3.424		
Total	75044.000	146			
Corrected Total	572.578	145			

a. R Squared = .025 (Adjusted R Squared = .013)

Table 5 reveals that there is no significant difference in the mean achievement scores of male and female students taught English language with cooperative teaching

method; $F(1,145) = 4.160$, $P = 0.064 > 0.050$. Therefore, the null hypothesis is not rejected, thus, there is no significant difference in the mean achievement scores of male and female students taught English language with cooperative teaching method.

Null Hypothesis 3 (Ho3): There is no significant difference in the mean achievement scores of male and female students taught English language with demonstration teaching methods.

Table 6: ANVOCA Test on Significance of Difference in the Mean Interest scores of SS 2 Male and Female Students taught English Language using Demonstration Teaching Method.

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	1011.125 ^a	2	5.562	102.007	.000
Intercept	1497.950	1	1497.950	540.606	.000
Treatment	198.879	1	198.879	66.190	.000
Gender	8.636	1	8.636	3.117	.079
Error	451.652	143	2.771		
Total	75997.000	146			
Corrected Total	462.777	145			

a. R Squared = .024 (Adjusted R Squared = .012)

Table 6 reveals that there is no significant difference in the mean achievement scores of male and female students taught English language with demonstration teaching methods. $F(1,145) = 3.117$, $P = 0.079 > 0.050$. Therefore, there is no significant difference in the mean achievement scores of male and female students taught English language with demonstration teaching methods.

Discussion of Findings.

The result revealed that the pre-test and post-test achievement scores of students taught English Language using cooperative learning method are higher when compared with those taught using demonstration teaching strategy. This means that the cooperative learning method significantly enhanced students' academic achievement in English Language when compared to demonstration method. This finding was in tandem with the

finding of Robyn (2014) that cooperative learning enables students to gain a deeper understanding of subjects by engaging in the learning process collectively. This suggests that students exposed to cooperative learning strategies tend to outperform their peers instructed through traditional, teacher-centered methods. This finding also supported the finding of Davidson & Major (2014) that Cooperative learning facilitates the identification of students' strengths and weaknesses, enabling weaker students to seek assistance from peers. In environments where instructors may have limited consultation time due to busy schedules, cooperative learning promotes critical thinking and facilitates idea clarification through peer debate and discussion. Finally, this is also in line with Sahin (2017) that cooperative learning promotes a positive attitude toward learning, improves social relations, and enhances self-esteem and cohesiveness among students. (2017) also stressed that when cooperative learning method is utilized as an instructional strategy, it associated with increased motivation, class participation, and academic achievement.

Conclusion

This study has revealed that cooperative teaching strategy had a lot of significant effect on SS 2 secondary school students' achievement in English Language learning. Application of cooperative teaching method has been shown to be more efficacious than demonstration teaching method. Furthermore, this study showed that cooperative teaching method helped to improve students' interest and academic achievement in English Language learning than students taught using the demonstration teaching method. In fact, cooperative teaching method has demonstrated its effectiveness in increasing meaningful learning in English Language because it is an activity-oriented method which involved checking and assessing individual academic confidence level at every new stage or unitsn knowledge never leaving a stone unturned.

Recommendations

The following recommendations were made based on the findings of the study.

- English Language learning teachers should adopt the use of CTM in English Language classes so as to help improve the interest and achievement of students in English language.
- The curriculum planners should modify English Language curriculum to include the use of innovative teaching method like the CTM in order to boost the participation of students in English language classroom thereby enhancing their interest and achievement in the subject.
- The Ministry of Education in Nigeria and other professional bodies should organize seminars, workshops and conferences for English language teachers on how to use CTM.
- Educational institutions should also teach pre service teachers in English Language learning methods.

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