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EFFECT OF THINK-PAIR-SHARE LEARNING STRATEGY ON SENIOR SECONDARY SCHOOL STUDENTS' ACHIEVEMENT IN GEOGRAPHY IN MAKURDI LOCAL GOVERNMENT AREA, BENUE STATE, NIGERIA

Okposo, C., Obida, J. A., and Sule, A. E.

[1,2,3] Department of Educational Foundations, Rev. Fr. Moses Orshio Adasu University, Makurdi, Benue State.

Corresponding author: carolokposo@gmail.com

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Abstract

The paper sought to investigate the effects of the Think–Pair–Share (TPS) instructional strategy on senior secondary school students' Achievement in Geography in Makurdi Local Government Area of Benue State, Nigeria, with gender as a moderating variable. The study was guided by two research questions and two hypotheses. A quasi-experimental, non-equivalent pretest–posttest control group design was adopted. The population comprised 7,763 Senior Secondary II (SS II) students, while the sample consisted of 131 students drawn from two intact classes. Data was collected using the Geography Achievement Test (GAT). The instrument was trial-tested on 20 students, and its reliability coefficient was established at .94 using the Kuder–Richardson Formula 20 (KR-20). The experimental group was taught using the Think–Pair–Share cooperative learning strategy, whereas the control group was taught using the traditional chalk-and-talk method. Mean and standard deviation were used to answer the research questions, while analysis of covariance (ANCOVA) was employed to test the null hypotheses at the .05 level of significance. The findings revealed that students exposed to the Think–Pair–Share instructional strategy achieved significantly higher achievement scores than those taught using the traditional method. The findings also indicated that gender did not have a statistically significant effect on students' achievement under the Think–Pair–Share instructional strategy. Based on these findings, it was recommended that Geography teachers at the senior secondary school level incorporate the Think–Pair–Share instructional strategy into their teaching practices to enhance students' achievement in Geography.

Keywords: Think-Pair-Share, Achievement, Geography Education, Cooperative Learning, Gender-Difference.

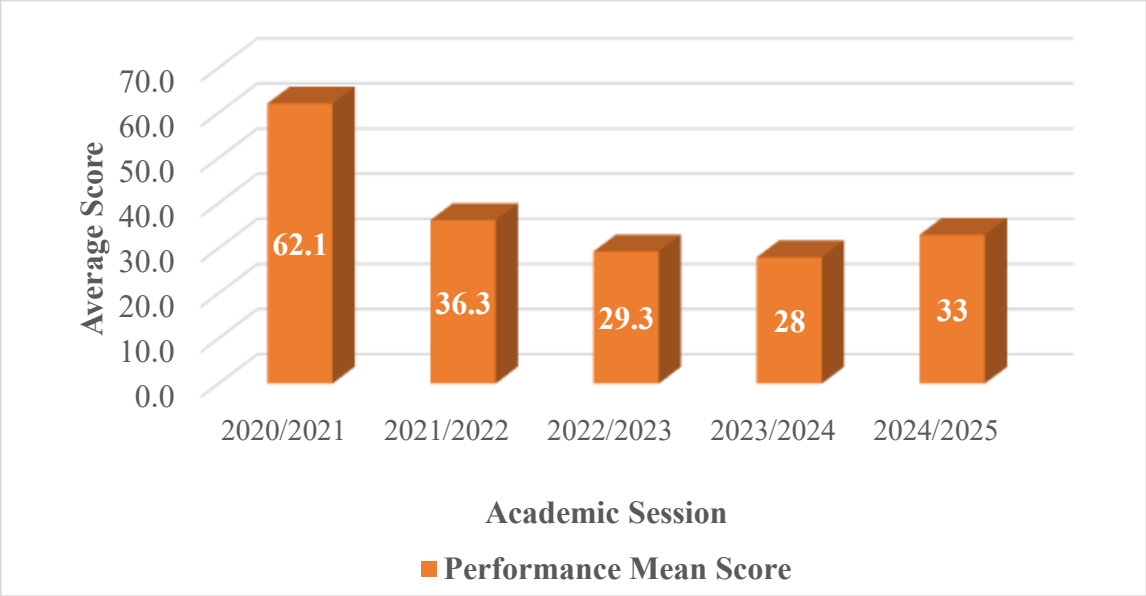
Introduction

Academic Achievement refers to the extent to which a learner, educator, or educational institution achieves predetermined educational objectives within a specified period. When considered in relation to a particular subject, such as geography, it is referred to as achievement in geography. In the context of this study, Achievement in geography is defined as the level of knowledge, understanding, and skills demonstrated by students in the subject, as assessed through test scores, examination results, and other relevant evaluation methods. According to Rabia (2020), Geography is both an academic discipline and a practical subject that equips learners with the knowledge, skills, and values required to interpret the world around them. Effective Geography instruction develops students' spatial reasoning, critical-thinking, map-reading, problem-solving, and environmental-awareness skills. However, students' achievement in the subject remains a concern in many secondary schools and is assessed through test scores, examination results, and other relevant evaluation methods. Globally, several studies have reported persistently poor achievement among secondary school students in Geography. Researchers have attributed this trend to factors such as teacher-centred instructional approaches (for example the chalk and talk teaching techniques), the abstract presentation of geographical concepts, inadequate instructional materials, and limited opportunities for active student participation (Tala, 2018).

Students' achievement in Geography remains a concern in many secondary schools in developing countries, including Kenya and Nigeria, due to challenges in teaching and learning (Stephen, 2017). Vygotsky's (1978) sociocultural theory emphasizes that effective Geography learning is promoted through active student participation, teacher guidance, scaffolding, and peer collaboration, which enhance students' understanding of geographical concepts and improve achievement. Students' achievement in Geography may be hindered by difficulties in understanding practical concepts, particularly map work, negative perceptions of the subject, overcrowded classrooms, shortages of qualified teachers, limited fieldwork opportunities, and excessive reliance on teacher-centered instructional methods. Locally, within many states and secondary schools in Nigeria, classroom observations and school-based assessments at Government Model School, Makurdi, Benue State, Nigeria

indicate that students often demonstrate low achievement in Geography lessons despite recording average or satisfactory examination achievement

Yearly Achievement Trend of Geography Studies Assessment Among SS 2 Students of Government Model School Makurdi Benue State, Nigeria (2020-2024) Academic Session.



The formative assessment results for SS II students at Government Model School, Makurdi, indicate fluctuating and generally low achievement in Geography between the 2020 and 2024 academic sessions. Mean scores declined from 36.3 in 2021 to 29.3 in 2022 and 28 in 2023, before improving slightly to 33 in 2024 with a **Grand Mean** of 37.7. This pattern suggests persistent learning difficulties that may be associated with inadequate conceptual understanding, weak assessment practices, poor knowledge retention, low student motivation, and reduced instructional effectiveness.

These challenges may reduce students' engagement and contribute to poor achievement in Geography (Stephen, 2017). These challenges underscore the need for effective instructional strategies that promote student engagement, facilitate meaningful learning, and improve achievement. Uzoma and Amadi (2018) observed that students may develop negative attitudes towards a subject when they find its concepts difficult to understand. Similarly, Ishaku (2019) reported that secondary school students experience various difficulties in learning science subjects, including Geography. These findings highlight the importance of adopting instructional

approaches that address students' learning difficulties and foster positive attitudes towards the subject. Students' achievement in Geography may be influenced by cognitive abilities, including spatial reasoning, visuospatial skills, critical thinking, and prior knowledge. Therefore, effective instructional strategies should address learners' diverse needs by promoting active participation, peer interaction, and the development of geographical skills.

Think–Pair–Share (TPS), introduced by Lyman (1981), is a cooperative learning strategy in which students individually consider a question, discuss their ideas with a partner, and share their responses with the class. According to Akanmu (2019), the strategy promotes active participation, peer interaction, and knowledge sharing among learners of different ability levels. These collaborative processes may enhance students' understanding of geographical concepts and improve their achievement in geography.

Gender-related differences in communication, confidence, and classroom participation may influence students' learning experiences. Think–Pair–Share (TPS) promotes inclusive learning by encouraging individual reflection, peer discussion, and equitable classroom participation among male and female students. These processes may improve achievement across gender groups, although the extent to which TPS benefits both genders equally requires empirical investigation (Zainab & Tyavbee, 2025). Adeyinka and Ogunbiyi (2023) found that the Think–Pair–Share (TPS) instructional strategy improved senior secondary school students' achievement in Geography compared with the conventional chalk-and-talk method. Their findings also showed that rural students taught using TPS performed significantly better than their urban counterparts, suggesting that the effectiveness of TPS may vary according to the learning context. Similarly, Hamdan (2017) investigated the influence of the TPS instructional strategy on the achievement of male and female third-grade students in Science in the Educational District of Irbid, Jordan. It was revealed that the Think–Pair–Share (TPS) instructional strategy significantly improved students' achievement in science, with female students outperforming their male counterparts. Although previous studies suggest that TPS promotes active participation and enhances achievement, its effectiveness among senior secondary school students studying Geography in Nigeria remains insufficiently established. Therefore, the present study investigated the effect of TPS on students' achievement in Geography in Makurdi Local Government Area of Benue

State, Nigeria, with particular attention to gender differences (Hamdan, 2017).

Purpose of the Study

The purpose of this study was to determine the effect of the Think–Pair–Share (TPS) instructional strategy on senior secondary school students' achievement in Geography in Makurdi Local Government Area of Benue State, Nigeria. Specifically, the study sought to:

1. Determine the achievement of Senior Secondary II (SS II) students taught Geography using the Think–Pair–Share instructional strategy and those taught using the traditional chalk-and-talk method in Makurdi Local Government Area of Benue State, Nigeria.
2. Determine the achievement of male and female Senior Secondary II (SS II) students taught Geography using the Think–Pair–Share instructional strategy in Makurdi Local Government Area of Benue State, Nigeria.

Research Questions

The following research questions were formulated to guide the study:

1. What are the mean achievement scores of Senior Secondary II students taught Geography using the Think–Pair–Share (TPS) instructional strategy and those taught using the traditional chalk-and-talk method?
2. What are the mean achievement scores of male and female Senior Secondary II students taught Geography using the Think–Pair–Share (TPS) instructional strategy?

Hypotheses

The following null hypotheses were tested at the .05 level of significance:

$H_{O1:}$ There is no statistically significant difference in the mean achievement scores of Senior Secondary II students taught Geography using the Think–Pair–Share (TPS) instructional strategy and those taught using the traditional chalk-and-talk method in Makurdi Local Government Area of Benue State, Nigeria.

$H_{O2:}$ There is no statistically significant difference in the mean achievement scores of male and female Senior Secondary II students taught Geography using the Think–Pair–Share (TPS) instructional strategy in Makurdi Local Government Area of Benue State, Nigeria.

Methods

The study employed a quasi-experimental, non-equivalent pretest–posttest control group design involving 131 purposively selected SS II students from two public secondary schools in Makurdi, Benue State, Nigeria. The target population comprised 7,763 SS II students across 22 secondary schools during the 2025/2026 academic session. Data was collected using a researcher-developed Geography Achievement Test (GAT), administered before and after the instructional intervention to assess students' academic achievement in the geographical concepts taught.

The Geography Achievement Test (GAT) comprised two sections: demographic information and 50 multiple-choice items drawn from the SS II Geography curriculum. Face and content validity were established through expert review by three specialists, while reliability was determined through a trial test involving 20 students outside the study sample. The Kuder–Richardson Formula 20 (KR-20) yielded a reliability coefficient of .94, indicating high internal consistency of the instrument. Two Geography teachers were trained as research assistants to facilitate the instructional intervention and administer the Geography Achievement Test (GAT). The experimental group received instruction using the Think–Pair–Share (TPS) strategy, while the control group was taught using the conventional chalk-and-talk method. The GPT was administered before and after the intervention, and the data were analyzed using means and standard deviations to answer the research questions, while analysis of covariance (ANCOVA) was used to test the null hypotheses at the .05 significance level

Results

Research Question 1: What are the mean achievement scores of Senior Secondary School II students taught using Think-pair-share learning strategy and those taught using Chalk and Talk method in Geography?

Table 1: Mean and Standard Deviation of achievement Scores of Students taught Geography using Think–Pair–Share Instructional Strategy (TPS) and those taught using Chalk and Talk method.

Group	Sample (n)	Pretest Mean	*SD*.	Posttest Mean	*SD*.	Mean Gain
Think–Pair–Share Strategy	81	25.84	6.20	65.01	6.20	39.17
Chalk and Talk Method	50	26.04	6.48	32.84	7.74	6.80
Mean Difference		0.20		32.17		32.37
Total	**131**					

Source: Researcher's Field Survey, 2026

Table 1 presents the pretest and posttest mean achievement scores and standard deviations of students taught Geography using the Think–Pair–Share (TPS) instructional strategy and those taught using the traditional chalk-and-talk method. Students taught using the TPS strategy obtained a pretest mean score of 25.84 (*SD* = 6.20) and a post test mean score of 65.01 (*SD* = 6.20), indicating a substantial improvement in their achievement following the intervention. In contrast, students taught using the chalk-and-talk method obtained a pretest mean score of 26.04 (*SD* = 6.48) and a post test mean score of 32.84 (*SD* = 7.74), indicating a comparatively smaller improvement.

The mean gain score for students taught using the TPS instructional strategy was 39.17, whereas that of students taught using the chalk-and-talk method was 6.80. The difference between the post test mean scores of the two groups was 32.17 in favour of the TPS group. Overall, these descriptive results suggest that students taught using the TPS instructional strategy demonstrated greater improvement in Geography achievement than those taught using the traditional chalk-and-talk method.

Research Question 2: What are the mean achievement scores of male and female students taught using Think-pair-share learning strategy in Geography?

Table 2: Mean and Standard Deviation of achievement Scores of Male and Female Students taught Geography Using Think–Pair–Share Instructional Strategy (TPS).

Group	Sample (n)	Pretest Mean	*SD*	Posttest Mean	*SD*	Mean Gain
Male students	41	25.51	6.22	63.85	7.21	38.34
Female Students	40	26.17	6.24	66.20	4.76	40.03
Mean difference		0.66		2.35		1.69
Total	**81**					

Source: Researcher's Field Survey, 2026

Table 2 indicates that the mean achievement score of male students taught Geography using the Think–Pair–Share strategy was 25.51 with a standard deviation of 6.22 at the pretest. At the posttest, the mean score increased to 63.85 with a standard deviation of 7.21, reflecting a substantial improvement in achievement. Similarly, female students recorded a pretest mean achievement score of 26.17 with a standard deviation of 6.24. At the posttest, their mean score increased to 66.20 with a standard deviation of 4.76, indicating a notable improvement in achievement. The table further reveals that the mean gain for male students was 38.34, while female students recorded a slightly higher mean gain of 40.03. The difference in the posttest mean achievement scores between male and female students was 2.35 in favor of female students. The results suggest that although both male and female students benefited significantly from the Think–Pair–Share learning strategy, female students performed slightly better than their male counterparts.

Hypothesis 1: There is no significant difference in the mean achievement scores of Senior Secondary School II students taught Geography using the Think–Pair–Share instructional strategy and those taught using the Chalk and Talk method in Makurdi Local Government Area.

Table 3: ANCOVA Summary of the Mean Achievement Scores of Students Taught Geography Using Think–Pair–Share Instructional Strategy (TPS) and Those Taught Using Chalk and Talk method.

Source	Type III Sum of Squares	Df	Mean square	F	Sig	Partial Eta Squared
Corrected model	32008.984	2	16004.492	341.733	.000	.842
Intercept	16448.575	1	16448.575	351.251	.000	.733
Pretest	9.043	1	9.043	0.193	.661	.002
Strategy	32008.933	1	32008.933	683.465	.000	.842
Error	5994.665	128	48.833			
Total	40282.00	131				

Source: Researcher's Field Survey, 2026

Table 3 presents the results of the analysis of covariance (ANCOVA) conducted to examine the effect of instructional strategy on the posttest achievement scores of senior secondary II students in Geography, while controlling for their pretest scores. The results revealed a statistically significant effect of instructional strategy on students' achievement, $F(1, 128) = 683.47$, $p < .001$, partial $\eta^2 = .842$. Since the obtained p value was below the .05 level of significance, the null hypothesis was rejected. This finding indicates a statistically significant difference in the adjusted mean achievement scores of students taught Geography using the Think–Pair–Share (TPS) instructional strategy and those taught using the traditional chalk-and-talk method.

The partial eta squared value of .842 indicates a very large effect size, suggesting that instructional strategy accounted for 84.2% of the variance in posttest achievement associated with the instructional strategy effect, after accounting for the pretest scores. This finding highlights the substantial effect of instructional strategy on students' achievement in Geography in the study sample.

Hypothesis 2: There is no significant difference in the mean achievement scores of male and female students taught Geography using the Think–Pair–Share learning strategy in Makurdi Local Government Area.

Table 4: ANCOVA Summary of the Mean Achievement Scores of Male and Female Students Taught Geography using Think–Pair–Share Instructional Strategy (TPS)

Source	Type III Sum of Squares	Df	Mean square	F	Sig	Partial Eta Squared
Corrected model	111.828	2	55.914	1.474	.235	.036
Intercept	18529.072	1	18529.072	488.405	.000	.862
Pretest	.362	1	.362	.010	.922	.000
Gender	111.827	1	111.827	2.948	.090	.036
Error	2959.160	78	37.98			
Total	345426.000	81				

Source: Researcher's Field Survey, 2026

Table 4 presents the results of the analysis of covariance (ANCOVA) conducted to determine the effect of gender on the posttest achievement scores of students taught Geography using the Think–Pair–Share (TPS) instructional strategy, while controlling for pretest scores. The results revealed that the effect of gender on students' achievement was not statistically significant, $F(1, 78) = 2.95$, $p = .090$, partial $\eta^2 = .036$. Since the p value was greater than the .05 level of significance, the null hypothesis was not rejected. This finding indicates that there was no statistically significant difference in the adjusted mean achievement scores of male and female students taught using the TPS instructional strategy.

Furthermore, the partial eta squared value of .036 indicates a small effect size, suggesting that gender accounted for approximately 3.6% of the variance associated with its effect on students' posttest achievement, after controlling for pretest scores. These findings suggest that gender was not a statistically significant determinant of achievement among students taught using the TPS instructional strategy in the study sample.

Discussion of Findings.

The first finding revealed that Senior Secondary II students taught Geography using the Think–Pair–Share (TPS) instructional strategy achieved significantly higher mean achievement scores than those taught using the conventional chalk-and-talk method. This finding agrees with Adeyinka and Ogunbiyi (2023), who reported that TPS significantly improved students' achievement in Geography. The result can be explained by Vygotsky's (1978) sociocultural theory, which emphasizes

active participation, social interaction, and collaborative learning. Through individual reflection, peer discussion, and the sharing of ideas, TPS enables students to clarify concepts, exchange knowledge, and develop a deeper understanding of geographical content. Therefore, TPS represents a promising instructional strategy for improving Geography learning and achievement among senior secondary school students in Nigeria (Adeyinka & Ogunbiyi, 2023; Vygotsky, 1978).

The second finding revealed that female students taught using the TPS instructional strategy obtained a slightly higher mean achievement score than their male counterparts. However, the difference was not statistically significant at the .05 level. This finding indicates that the study did not establish a statistically significant difference in the achievement of male and female students taught using TPS. It suggests that both groups performed comparably under the instructional strategy, although the descriptive results showed a slight advantage for female students. This finding differs from that of Hamdan (2017), who reported a statistically significant gender difference in academic achievement, with female students outperforming their male counterparts. The difference between the findings may reflect variations in the study contexts, subject areas, participants' characteristics, or instructional conditions. However, these possible explanations require further empirical investigation. Overall, the present finding suggests that TPS may support the achievement of both male and female students in Geography without a statistically significant difference between the groups in this study. Nevertheless, the absence of a statistically significant gender difference should not be interpreted as definitive evidence that gender has no influence on learning outcomes.

Conclusion

The study concludes that the Think–Pair–Share (TPS) cooperative learning strategy is more effective than the conventional chalk-and-talk method in improving SS II students' achievement in Geography. The findings also indicate that TPS benefits both male and female students, with no statistically significant gender difference in their achievement. These results suggest that TPS can promote active participation, peer collaboration, and improved achievement in Geography (Lyman, 1981; Vygotsky, 1978).

Recommendations

Based on the outcome of this study, the following recommendations are made:

1. Geography teachers at the senior secondary school level should incorporate the Think–Pair–Share (TPS) instructional strategy into their teaching practices, as the findings of this study indicate that it can improve students' achievement in Geography.
2. Curriculum planners should consider integrating cooperative learning strategies, such as the Think–Pair–Share (TPS) instructional strategy, into the geography curriculum and teachers' instructional guides. This would provide structured guidance for teachers and promote the consistent implementation of learner-centered teaching approaches across secondary schools.

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