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## Effects of Group-Based Mastery Instructional Strategy on Academic Performance of Social Studies students in Delta State Upper Basic Schools

By

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### Abstract

This study investigated the effect of group-based mastery instructional strategy on academic performance of Social Studies students in Delta State Upper Basic schools. The study adopted a quasi-experimental design. Two research questions and two hypotheses were formulated. The sample size of the study comprised 170 Basic 8 students drawn from six secondary schools. Social Studies Performance Test was used as the instrument for data collection. It was tested and analyzed, using Pearson Product Moment Correlation Coefficient. The reliability value was 0.75. Data were collected and the research questions were answered using mean and standard deviation while ANCOVA was used to test the null hypotheses at 0.05 level of significance. The results showed that students taught Social Studies with group-based mastery performed academically higher than those taught with lecture method. The results also revealed that gender had no significant effect on students' academic performance. Based on the findings, it was recommended that group-based mastery instructional strategy should be employed as one of the instructional strategies; Seminars and workshops should be organized for teachers on instructional strategy like group-based mastery to enhance the teaching of Social Studies; male and female students should be given equal opportunity to learn in the classroom.

### Keywords:

Group-Based Mastery Instructional Strategy, Gender, Academic Performance.



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## Introduction

Social Studies was made a compulsory subject in Nigeria for secondary school students in 1963, and this was done consciously in order to develop in students problem-solving skills, attitudes, and values, as well as knowledge that will allow them to socialize effectively in society. The purpose of introducing Social Studies in schools was to give students the skills to investigate, analyze, criticize, and understand the society in which they live, as well as to gain knowledge and understanding of their fundamental human rights and responsibilities in public life (Mezieobi, 2013).

The aim of teaching is to bring about positive change in the behaviour of learners. Instructional strategies that promote effective teaching and enhance the academic performance of students are the ones that differentiate appropriate teaching from inappropriate teaching. Often times, unsatisfactory academic performance of students is blamed on the instructional strategies used by the teachers (Parker & Asare, 2021). It is therefore important to apply instructional strategy that promote students' active participation in the process of teaching-learning, to enhance their academic performance.

Bloom (1968), developed the group-based mastery instructional strategy. The group-based mastery model entails breaking down the subject matter to be learned into units of learning, each with its own set of goals. It is defined as a teaching strategy involving a pre-specified criterion level of performance that students must achieve in order to complete the instruction and move on. When students obtain the set of pass marks on a diagnostic test, they have demonstrated mastery of each unit. The group-based mastery model can assist teachers in identifying students' areas of weakness and making plans to correct the problem, thus breaking the cycle of failure (Jude, 2019).

Group-based mastery instructional strategy provides the opportunity for individualized learning to learners by giving each learner the time to master the units of the topic, and this could have positive effect on the academic performance of students (Oladayo, 2021).

Gender is a phenomenon caused by the differences in civic duties, roles, behaviours, and responsibilities between men and women. It refers to both male and female cultural characteristics (Filgona, & Sababa, 2017). It was assumed that girls achieved and were retained equally with boys due to the fact that the government and society are now paying more attention to the education of the girl-child in order to develop their untapped intellectual resource to improve on their academic achievement (Salihu et al., 2020). It is obvious that males are superior to females in Nigerian culture. Thus, gender roles are clearly defined in our society. This may have an effect on male and female students' academic performance because role differentiation or distinction limits full participation, development, and utilization of individual potentials, either directly or indirectly (Elbechir, 2021).

## Statement of the Problem

Social studies are critical for the development of any nation because it provides students with the necessary skills, knowledge, attitude, and values for realizing their potential and becoming useful members of the society. It has been observed that the teacher-centered teaching method is mostly used in the upper basic schools, a situation whereby the learners are passive listeners in the teaching-learning process. The lack of student's engagement during teaching-learning activities could be related to students' academic performance.

For students to learn effectively, teachers must use instructional strategies that not only pique students' interest, but also allow them to participate in the learning process (Egharevba & Iyamu, 2020). Hence, there is a need to investigate the effectiveness of constructive instructional strategy such as group-based mastery instructional strategy on students' academic performance. Therefore, the research problem is, "What is the effect of group-based mastery instructional strategy on Upper Basic Social Studies students' academic performance in Delta State?"

### **Purpose of the Study**

The purpose of the study generally is to investigate the effect of group-based mastery instructional strategies on upper basic Social Studies students' academic performance in Delta State. Specifically, the study intends to;

1. Determine the difference in the academic performance of students taught Social Studies with the use of group-based mastery instructional strategy and those taught with the use of lecture method.
2. Determine the difference in the academic performance of male and female Upper Basic students taught Social Studies with group-based mastery instructional strategy.

### **Research Questions**

To guide the study, the following research questions were raised:

1. What is the difference between the academic performance of Upper Basic students taught Social Studies with the use of group-based mastery instructional strategy and those taught with the use of lecture method?
2. What is the difference between the academic performance of male and female Upper Basic students taught Social Studies with group-based mastery instructional strategy?

### **Hypotheses**

To guide the study, the following hypotheses were formulated;

**HO1:** There is no significant difference between the academic performance of Upper Basic students taught Social Studies with the use of group-based mastery instructional strategy and those taught with the use of lecture method.

**HO2:** There is no significant difference between the academic performance of male and female Upper Basic students taught Social Studies with group-based mastery instructional strategy.

### **Group-Based Mastery Instructional Strategy and Academic Performance of Students**

Group-based mastery instructional strategy is an instructional process that gives learners the opportunity to display mastery of content. It is unique when compared to the traditional method of teaching in the sense that unit of topic is taught and learners' comprehension is evaluated before they are allowed to move on to the next unit. Students who display mastery on the test are given more demanding tasks so as to extend and deepen their knowledge on the content while the learners who do not pass this test at a particular level receive a corrective instruction, followed by a summative test. Students who fail the summative test may receive further instruction until all students finally pass before they move to the next unit, till they master the topic (Barr & Wessel, 2018).

### **Steps for using Group-Based Mastery Instructional Strategy to Teach**

- (1). The teacher begins the lesson by presenting an overview of what the unit contains in a simple manner.
- (2). The teacher explains to the learners the information that is to be learned and how it should be done in the teaching-learning process, the teacher would teach the students on how the unit would be carried out.
- (3). The instructor notifies the students of the dates of the formative and summative assessments. The learners will be given a diagnostic mastery exam at the conclusion of each unit of instruction to ascertain their next learning level. Remedial teaching will be given to learners who have not grasped the learning unit. This will be carried out until every student has mastered the material, at which point they will go on to the following lesson (McCane et al., 2017).

A group-based mastery instructional strategy is a learning situation in which learners must demonstrate mastery of a topic before moving on to the next level (Egharevba & Iyamu, 2020). Oladayo (2021) investigated how mastery learning affected the retention and academic performance of social studies students in the Nigerian state of Ekiti. The results of the study showed that social studies students' academic performance was positively impacted by mastery learning. Reuben and Ogheneakoko (2021), looked into how students' academic performance was affected by mastery learning. The results of the study showed that students who were taught through mastery learning outperformed those who were taught using lecture approach in terms of academic performance.

Ugwu and Nnamani (2023), looked into the impact of a group-based mastery learning model on students' academic performance in basic science. A non-equivalent, quasi-experimental control group design was used for the investigation in Nsukka. The results of the study showed that students using the group-based mastery learning model did better academically than students using the lecture technique. Iserameiya and Ibeneme (2018) looked at how junior secondary school students' academic performance in basic technology was affected by the mastery learning technique. The results of the study showed that the mastery learning technique is an effective teaching strategy that significantly improves students' academic performance. The study's findings showed how the group-based Mastery learning technique improved students' academic performance in fundamental science.

### **Lecture Teaching Method**

The lecture method, a type of direct instruction, can be defined as the teacher creating and modifying experiences to help students reach certain learning goals (Powell, 2011). In our schools, the traditional form of instruction is the lecture. The lecture technique is no longer effective in the twenty-first century, according to several academics (De Los et al, 2016; French & Kennedy, 2016; Kohli et al, 2019). In such teacher-centered environments, students are not required to think critically, according to the finding of Hong and Yu (2017), particular tactics are required to capture the learners' attention and encourage their participation. Some instructors still rely on the "sage on the stage" lecture technique, which can make learning ineffective and cause students to lose interest (Kramer, 2017).

### **Gender and Academic Performance of Students**

The creation of male and female behaviours is known as gender (Elbechir, 2021). In Kaduna State, Nigeria, Salihu et al. (2020) studied the impact of gender on the academic success of upper basic social studies students in a field trip-based learning environment. The mean academic success scores of male and female students did not significantly vary, according to the study's findings. According to Rudhumbu (2022), in order to foster equal interaction between male and female students in the learning process, teachers must effectively address the behavioral differences that arise from the complex nature of the classroom and surrounding environment. Based on gender, Mwihia (2020) found a considerable variation in students' academic performance. Male students did better academically than female students. Oladayo (2021) discovered that gender has a major impact on the academic success of social studies students. According to Ugwu and Nnamani (2023), female students outperformed male students in fundamental science and technology academically. Oladotun (2020) found that a student's gender affected their academic performance. Adigun et al. (2015) examined the relationship between gender and academic achievement and found no evidence of a statistically significant difference in student performance between male and female. Awodun and Oyeniyi (2018) discovered no statistically significant distinction in the academic achievement of male and female students in the state of Ekiti.

Parajuli and Thapa (2017), on the other hand, found that female students outperformed male students. According to Oludipe & Oludipe (2018), there were no gender-based disparities in the cognitive, emotional, or psychomotor skill accomplishments of the students. In the Obio Akpor Local Government Area of Rivers State, Godpower-Echie and Ihenko (2017) looked at the effect of gender on students' interest in and academic success in integrated science. The results of the study showed that while gender had no discernible impact on students' performance in integrated science, it did have a considerable impact on interest. In 2015, Kaily conducted research on gender prejudice in math classrooms in the South West of the United Kingdom. Do instructors at Columbia Canada Christian Middle School treat males and girls equally? Male students performed better academically than female students when they had greater engagement with teachers, according to the study's findings. According to a research by Obro (2018), gender had no discernible impact on students' academic achievement in social studies. In Kaduna State, Nigeria, Salihu et al. (2020) studied the impact of gender on the academic success of upper basic social studies students in a field trip-based learning environment. The results of the study showed that there was no statistically significant difference between male and female students' mean academic success scores.

According to the literature review, not many studies have been conducted in Delta State to look into how group-based mastery instructional strategy affects students' academic performance in Social Studies. Furthermore, there is disagreement in the data on whether male or female students outperformed female students academically, making the research on gender and student performance in the classroom unclear. The conflicts and the lack of comparable research on Social Studies in Delta State's Upper Basic schools were the gaps addressed by this study.

## **Methodology**

The study employed a quasi-experimental approach with a pre-test-post-test control group. 2x 2x2 non-randomized participants from complete classes made up the factorial design. The first group (I) received therapy utilizing the group-based mastery technique (GBM), whereas the second group (II) was placed in the lecture approach as the control group. 45,672 Basic 8 students from Delta State's 468 public Upper Basic schools made up the study's population. Through the use of balloting methods and multi-stage selection approaches at four levels, a sample of 170 Basic 8 students was selected from 11 schools. The Social Studies Performance Test (SSPT) served as the study's instrument. A value of 0.75 was discovered when the reliability was assessed using the Pearson Product Moment correlation. This suggests that the instrument was dependable and helpful. Following student selection and method assignment, the Social Studies Performance Test (SSPT) was administered as a pre-test in the intact classrooms of the randomly selected research schools. The right teaching tactics were used to teach the curriculum's contents. The experimental and control groups received training from the researcher. Students in the treatment and control groups took the Social Studies Performance Test (SSPT) as a post-test following instruction-based treatment, and data were produced. The Pre-test and Post-test data were subjected to statistical analysis utilizing descriptive statistics, namely Mean and Standard Deviation. These made it easier to distinguish between the differences in the subjects' performance. Using the Analysis of Covariance (ANCOVA) approach, the hypotheses were evaluated.

## **Results**

**Research Question 1: What is the difference between the academic performance of Upper Basic students taught Social Studies with the use of group-based mastery instructional strategy and those taught with the use of lecture method?**

**Table 1: Mean difference between the academic performance of Upper Basic social studies students taught with group-based mastery instructional strategy and lecture method.**

Test score	Instructional Strategies	N	Mean	Std. Deviation	Mean Difference	95% Confidence Interval of the Difference	
Pre-Test	Group-Based mastery	90	47.02	13.83	4.86	15.81	3.89
	Lecture Method	80	51.88	17.60			
Post-Test	Group-Based mastery	90	67.10	15.88	10.19	0.58	12.8
	Lecture Method	80	56.91	11.59			

Table 1 presents a comparative analysis of the mean differences in test scores for students subjected to each instructional strategy, highlighting their relative effectiveness. This helps to address Research Question 1, which compares the academic performance of Upper Basic students taught Social Studies using the group-based mastery instructional strategy versus those taught using the lecture method. In the pre-test, students who were taught the lecture approach had a higher mean score of 51.88 with a standard deviation of 17.60, whereas students who were taught the group-based mastery strategy had a mean score of 47.02 with a standard deviation of 13.83. With a 95% confidence range spanning from 3.89 to 15.81, the mean difference between the two groups was 4.86. This shows that the students who were taught using the group-based mastery technique had a little lower mean score than those who were taught using the lecture method prior to the instructional interventions.

With a standard deviation of 15.88, the mean score for students who were taught using the group-based mastery technique climbed to 67.10 on the post-test. Students who were instructed by lectures, on the other hand, obtained a mean score of 56.91 with an 11.59 standard deviation. The post-test scores showed a mean difference of 10.19 between the two groups, with a 95% confidence range spanning from 0.58 to 12.8. This shows that students taught using the group-based mastery technique outperformed those taught using the lecture method following the instructional interventions. The group-based mastery group's increased mean scores between the pre- and post-tests show a discernible improvement in their academic performance. The mean difference in the post-test scores further emphasizes the efficacy of the group-based mastering technique.

**Research Question 2: What is the difference between the academic performance of male and female Upper Basic students taught Social Studies with group-based mastery instructional strategy?**

**Table 2: Mean difference between the academic performance of Male and Female Upper Basic social studies students taught with group-based instructional strategy.**

Group-based Test score	Gender	N	Mean	Std. Deviation	Mean Difference	95% Confidence Interval of the Difference	
Pre-Test	Male	43	47.87	13.15	1.79	-5.66	9.25
	Female	47	46.07	14.74			
Post-Test	Male	43	65.87	14.53	-2.61	-11.20	5.97
	Female	47	68.48	17.43			

The academic performance of male and female Upper Basic students in Social Studies when taught utilizing the group-based mastery teaching technique is compared in detail in Table 2. Male students scored 47.87, with a standard deviation of 13.15, in the pre-test phase, whereas female students scored significantly lower, at 46.07, with a standard deviation of 14.74. This suggests that male and female students had slightly different pre-existing knowledge in social studies, with male students scoring slightly higher on the mean pre-test.

In contrast to male students, who had a mean score of 65.87 with a standard deviation of 14.53, female students performed better in the post-test phase, with a mean score of 68.48 and a standard deviation of 17.43. This shows that female students outperformed male students in the post-test phase, suggesting that female students have benefited more from the group-based mastery teaching technique in terms of improving their academic performance in social studies. Male students had a somewhat higher mean pre-test score than female students, according to the 1.79 mean difference in pre-test scores between the two groups of students. In contrast, female students had a higher mean post-test score than male students, as indicated by the -2.6 mean difference in post-test scores between male and female students.

Ho1: The academic performance of Upper Basic students taught Social Studies using a group-based mastery teaching style do not differ significantly from that of students taught using a lecture method.

**Ho1: There is no significant difference between the academic performance of Upper Basic students taught Social Studies with the use of group-based mastery instructional strategy and those taught with the use of lecture method.**

**Table 3: Analysis of ANCOVA for Hypothesis One**

**Dependent Variable: POST-TEST**

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Squared	Eta
Corrected Model	11376.404 <sup>a</sup>	2	5688.202	41.808	.000	.439	
Intercept	9217.895	1	9217.895	67.751	.000	.388	
PRE-TEST	10633.900	1	10633.900	78.158	.000	.422	
Group-Based* Method	Lecture 3247.762	1	3247.762	23.871	.000	.182	

Error	14557.996	107	136.056			
Total	484982.000	110				
Corrected Total	25934.400	109				

a. R Squared = .439 (Adjusted R Squared = .428).

Regarding the difference in academic performance between Upper Basic students taught Social Studies using the group-based mastery teaching approach and those taught using the lecture technique, Table 3 displayed the results of the ANCOVA analysis on the hypothesis statement. With a mean square of 5688.202, the data shows a considerable difference in academic performance between the two teaching styles. The extremely significant F-value of 41.808 ( $p < 0.001$ ) indicates that there is no chance explanation for the difference in academic performance between the two instructional modalities. The partial eta squared measurement of the effect size is 0.439, suggesting that the instructional tactics have a significant impact on academic achievement. This indicates that the choice of instructional technique can account for 43.9% of the variance in academic performance. The alternative hypothesis, on the other hand, that there is a significant difference in academic performance between Upper Basic students taught Social Studies using the group-based mastery instructional strategy and those taught using the lecture method, is supported by the results, which, in contrast, support rejecting the null hypothesis (Ho2).

#### Female Upper Basic students taught Social Studies with group-based mastery instructional strategy.

**Table 4: Analysis of ANCOVA for Hypothesis Two**  
**Dependent Variable: POST-TEST**

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	2140.618 <sup>a</sup>	2	1070.309	4.823	.012	.152
Intercept	9546.903	1	9546.903	43.023	.000	.443
PRE-TEST	2121.913	1	2121.913	9.562	.003	.150
Gender*Group-Based	36.395	1	36.395	.164	.687	.003
Error	11982.750	54	221.903			
Total	270801.000	57				
Corrected Total	14123.368	56				

**a. R Squared = .152 (Adjusted R Squared = .120)**

The results of the analysis of covariance (ANCOVA) used to compare the academic performance of male and female Upper Basic students who were taught Social Studies utilizing the group-based mastery teaching technique were displayed in Table 4. A moderate effect size is indicated by a partial eta squared of .152 and  $F(2, 54) = 4.823$ ,  $p = .012$ . This implies that the gender difference accounts for 15.2% of the variance in academic performance. When taking into account the group-based mastery instructional strategy, there was no significant difference in the academic performance of male and female students, according to the interaction effect between gender and the strategy ( $F(1, 54) = 0.164$ ,  $p = 0.687$ ). Overall, the data are consistent with the null hypothesis being maintained, showing that male and female Upper Basic students taught Social Studies using the group-based mastery teaching technique do not significantly differ in their academic achievement.

#### Discussion of Results

The study's initial finding demonstrates that group-based mastery education improved students' academic performance more than lecture instruction did. This may be because the lecture technique does not provide students with the chance to master a topic before moving on to the next, whereas the



group-based mastery teaching strategy allows students to study a subject unit by unit until they have mastered the topic. Group-based mastery training gives students the chance to learn by providing them the time to become proficient in the subject matter, which improves their academic achievement. This result supports the research of McGane et al. (2017), Barr & Wessel (2018), Iserameiya and Ibeneme (2018), and Oladayo (2021) which found that group-based mastery training outperformed the lecture technique in improving students' academic performance. The results of Reuben and Ogheneakoko (2021) who discovered that the group-based mastery teaching technique improved students' academic performance in social studies are also consistent with this conclusion. Similar findings were made by Ugwu and Nnamani (2023), who discovered that group-based mastery training was superior to lecture in terms of improving students' academic performance. The results of this study were consistent with those of other studies, which found that group-based mastery instructional strategy was superior to lecture instruction in improving students' academic performance.

The study's second finding indicated that gender had no discernible impact on students' academic performance in Social Studies. One possible explanation for this might be because equal opportunities for participation in classroom activities for male and female students have improved both groups' academic performance. This findings is consistent with that of Obro (2018), who discovered no discernible relationship between gender and students' academic achievement in social studies. According to Oludipe & Oludipe (2018), there were no discernible gender differences in the cognitive, emotional, or psychomotor skill accomplishments of the students. According to Salihu et al. (2020), there was no discernible difference between male and female students' mean academic success scores. Additionally, Salihu et al. (2020) found no discernible difference between male and female students' mean academic attainment scores. The findings of this study are consistent with the outcomes of these earlier investigations.

Likewise, (Kaily, 2015; Godpower-Echie and Ihenko, 2017) shown a statistically significant variation in the academic achievement of male and female students. Research by Uzoma and Okoli (2019); Mwihiya (2020) revealed a noteworthy variation in students' academic performance according to their gender. Male students did better academically than female students. According to Lee, Rhee, and Rudolf (2017), there is a link between students' academic achievement and gender. These contradict the results of this investigation.

## **Conclusion**

Based on the findings of the study, it was concluded that:

1. Group-based mastery instructional strategy had a positive effect on students' academic performance than lecture method.
2. Gender of students had no effect on the academic performance of students taught Social Studies with group-based mastery instructional strategy

## **Recommendations**

Based on the findings of the study, it was recommended that:

- i. Group-based mastery instructional strategy should be employed as one of the instructional strategies to enhance students' academic performance.
- ii. Seminars, conferences and workshops should be organized for the training of in-service teachers on instructional strategy like group-based mastery instructional strategy to enhance the teaching of Social Studies.
- iii. Male and female students should be given equal opportunity to learn in the classroom.

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