

EFFECTS OF GRAPHIC ORGANIZERS TEACHING STRATEGY ON SENIOR SECONDARY STUDENTS ACHIEVEMENT IN ECONOMICS IN ABUJA MUNICIPAL AREA COUNCIL

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Abstract

The study examined the effects of graphic organizers teaching strategy on senior secondary school students' interest and achievement in Economics in Abuja Municipal Area Council. The study was guided by two research questions and two hypotheses. The study employed quasi-experimental research design involving the non-randomized pretest, posttest, control group design. The population comprised 6,638 (4,320 male and 2318 female) SS II Economics students from 15 public secondary schools for the 2021/2022 academics session. The sample for this study consisted of 195 (111 male and 84 female) SS II Economics students from two senior secondary schools in Abuja Municipal Area Council using stratified random sampling technique. The researcher developed and used Economics Achievement Test (EAT) for data collection which were validated and obtained logical index of 0.86 for EAT and the reliability coefficient of 0.88 was obtained for EAT through test-retest method. Research questions were answered using mean and standard deviation while the null hypotheses were tested using ANCOVA at 0.05 level of significance. The findings revealed that there was significant difference in the mean achievement scores of students taught Economics using graphic organizers strategy and scores of those taught using conventional method. Also, gender was found to be significant in the mean achievement scores of students taught Economics using graphic organizers strategy. The study recommended among others that Economics teachers should adopt the use of graphic advance organizer in teaching Economics concepts because it boosts learning and academic achievement; and Regular workshops and seminars should be organized for Economics teachers on the formulation and use of graphic organizers in teaching and learning to help improve the achievement of students in Economics.

Keywords: Academic Achievement, Graphic Organizers and Economics

Introduction

Economics as a subject is one that is offered in the senior secondary schools in Nigeria. Economics is one of the few social science subjects that heavily utilize statistical and mathematical models to analyze real-life economic problems. The

relevance of Economics as a requirement for technological advancement of a nation cannot be underrated. According to Akande and Babalola (2015), Economics ensures the creation of national economic policies designed to achieve certain economics goals. These policies and goals include national economic growth leading to higher standard of living, national full employment leading to suitable jobs for all citizens who are willing and able to work, economic efficiency leading to maximum fulfillment of wants using the available national productive resources, economic freedom making workers and consumers have a high degree of freedom in their economic activities, national economic security making the handicapped and aged to earn minimum level of income, balance of trade by achieving favourable balance of trade with the rest of the world in international trade and financial transactions.

Despite the noble objectives of Economics, the academic achievements of students at the external examination have been poor in Nigeria. This is evident in the poor academic achievement recorded in Economics by students who wrote the year 2022 West African Senior School Certificate Examination (WASSCE) conducted by the West African Examinations Council (WAEC). According to West African Examinations Council Chief Examiner's reports (2022), out of a total of 32,557 candidates that wrote the examinations, only 8,240 candidates, representing just 25.31 per cent, obtained credit pass in Economics. The result, when compared to that of the previous two years, shows a marginal decline in the performance of candidates. For instance, in the year 2020 SSCE, 32.81 per cent of the candidates obtained credit pass in Economics. In 2021, the percentage declined to 27.57 and further to 25.31 per cent recorded in 2022. The current state of affairs is displeasing and this trend could hamper meaningful development in Nigeria and Federal Capital Territory, Abuja in particular.

The poor academic achievement of students in Economics could be attributed to lack of utilization of appropriate instructional strategies, abstract nature of teaching Economics concepts. Various activity-based teaching strategies have been employed for the purpose of improving the teaching and learning of Economics at the SS level. These strategies include inquiry, demonstration, process approach, cooperative learning and laboratory activity (Usman, 2017). With all these problems, the need arises to use a strategy such as Graphic-Advance-Organizer to see whether it will enhance meaningful teaching/learning, develop students' interest and understanding of the concepts taught in Economics. A Graphic Organizer (GO) is simply a graphical or spatial representation of text concepts. It is an instructional strategy that can help students to organize and structure the information and concepts to relate with the other concepts. In addition, the spatial arrangement of GOs allows the students to identify the missing information or absent connections in one's strategic thinking. GOs have many names including visual maps, mind mapping and visual organizers. As an instructional tool, graphic organizers used to illustrate students' prior knowledge about a topic or section of text that have been highly recommended to be used in classrooms. According to Clark (2017), graphic

organizers not only enable students to record and categorize information, but also help students to understand difficult concepts, generate thoughts, and identify connections between ideas. When used effectively, these visual tools can have a positive impact on student achievement. Learners who work with graphic organizers often show improved writing and critical thinking skills. While working with colleagues across the curriculum, teacher-librarians are in an ideal position to include graphic organizers in their instructional practice as they guide learners through the inquiry process. Teacher-librarians who are familiar with graphic organizers can model an effective literacy strategy and develop new partnerships with classroom teachers. Learning how to think is not as complicated as many people have believed. Once learned thinking skill can readily be applied to all curriculum content areas and enhance life-long student learning. While our knowledge about subjects can change, fade, or become obsolete, our ability to think effectively remains constant. Effective thinking strategies allow learners to acquire the necessary knowledge and apply it appropriately.

Gender is a prominent variable in our schools especially in Nigeria. Gender refers to the socially, culturally constructed characteristics roles which are ascribed to male and female in any society. Okeke (2018) defined gender as a socially constructed concept based on the assumed position that a group of humans should possess. Gender studies are popular in Economics. Studies conducted by Owolabi and Adaramati (2015) revealed that the experimental groups performed better than the control group, the treatment appeared to be more effective among male students than their female counterparts, the main effect of treatment was significant and the main effect of gender as well as the interaction effects of treatment and gender were not statistically significant. Similarly, Bash, Kurumeh and Samba (2020) revealed that there were significant differences in the mean achievement of male and female, in favour of female. However, Inuwa (2015) revealed that there was no significant difference in the mean scores between the experimental and control groups; also, there was no significant difference in the mean scores of male and female Social Studies students exposed to graphics as a teaching - learning strategy. Moreso, Idiong, Eyenaka and John (2019) revealed that there is a significant difference in the mean academic performance scores of the experimental and control groups. Also, there is a significant difference in the retention level of students taught using Graphic Advance Organizers compared to those taught lecture method only;

Bulus and Andrew (2021) revealed that students taught Economics concept using graphic advance-organizer had high achievement, interest and were significantly better in their academic achievement as compared to those taught using lecture method: and that the use of graphic advanced organizer is gender-friendly. However, none of the reviewed studies examined the differential effects of using graphic organizers teaching strategy on students' interest and academic achievement in Economics in Abuja Municipal Area Council. Moreover, the reviewed studies were at variance with the present study in terms of geographical scope and period of study, hence they were conducted outside Abuja Municipal Area Council and before

2022 where and when the present study was conducted respectively. Also, the empirical evidences from the literature available to the researcher revealed that no conclusion has been reached on the differential effects of gender on students' achievement in Economics when taught using graphic organizers strategy. The study explored the effect of gender as moderator as variables on students' achievement in Economics when taught using graphic organizers in Abuja Municipal Area Council. This is the gap the study filled.

Research Questions

The following research questions guided the study:

1. What are the mean achievement scores of students taught Economics using graphic organizers strategy and of those taught using conventional method?
2. What are the mean achievement scores of students taught Economics using graphic organizers strategy based on gender?

Research Hypotheses

The following hypotheses were tested at 0.05 alpha level:

H₀₁: There is no significant difference in the mean achievement scores of students taught Economics using graphic organizers strategy and scores of those taught using conventional method.

H₀₂: There is no significant difference in the mean achievement scores of students taught Economics using graphic organizers strategy on based gender.

Methodology

The study employed quasi-experimental research design involving the non-randomized pretest, posttest, control group design. The population comprised 6,638 (4,320 male and 2318 female) SS II Economics students from 15 public secondary schools for the 2021/2022 academics session. The choice of SS II students was informed by the fact that students at this level were assumed to have acquired some basic Economics concepts, knowledge and skills in SS I to enable them attempt the pretest items. Furthermore, the choice of SS II was to avert the disruption that may arise as a result of the conduct of WAEC and NECO, since they were not in their final examination class. The sample for this study consisted of 195 (111 male and 84 female) SS II Economics students from two senior secondary schools using stratified random sampling technique. The researchers developed and used Economics Achievement Test (EAT) for data collection which were validated and obtained logical index of 0.86 for EAT and the reliability coefficient of 0.88 was obtained for EAT through test-retest method. Data to answer the research questions were answered using mean and standard deviation while the null hypotheses were tested using ANCOVA at 0.05 level of significance.

Results

Research Question One: What are the mean achievement scores of students taught Economics using graphic organizers strategy and of those taught using conventional method?

Table 1: The EAT Mean scores and Standard Deviation of Students in Experimental and Conventional Groups

Groups	No. of Students	Pretest		Posttest	
		Mean	SD	Mean	SD
Experimental Group (EG)	125	23.43	10.01	41.18	13.51
Conventional Group (CG)	70	22.64	11.07	35.26	15.45

From Table 1 shows that students in experimental group had mean score of 23.43 and 41.18 in pretest and posttest respectively, and standard deviation of 10.01 and 13.51 in EAT. Also, students in control group had mean scores of 22.64 and 35.26 in pretest and posttest respectively, and standard deviation of 11.07 and 15.45 in EAT. It implies therefore, that students taught Economics using graphic organizers strategy performed better than those taught using conventional method.

Research Question Two: What are the mean achievement scores of students taught Economics using graphic organizers strategy based on gender?

Table 2: The EAT Mean scores and Standard Deviation of Male and Female Students in Experimental and Conventional Groups

Groups	Gender	No. of Students	Pretest		Posttest	
			Mean	SD	Mean	SD
Experimental	Male	72	13.43	4.11	21.48	5.57
	Female	53	13.13	4.12	20.68	5.47
Conventional	Male	39	12.64	4.87	18.77	5.49
	Female	31	12.52	4.77	18.27	5.09

Table 2 shows EAT pretest and posttest mean score and standard deviations of male and female Economics students in experimental and control groups. The result indicates that both male and female students in experimental group and conventional groups exhibited closely similar mean scores before the treatment as reflected by their relatively closed values of pretest mean scores of 13.43, 13.13, 12.64, 11.62 and standard deviations of 4.11, 4.12, 4.87, 4.77 for the two groups. The result also reveals that students in the two groups (EG and CG) had relatively closed values of posttest means scores of 21.48, 20.68, 18.77, 18.27 and standard

deviations of 5.57, 5.47, 5.49, 5.09 as segregated by gender. This implies therefore, that both male and female Economics students in experimental group improved their achievement at seemingly similar rate than their counterpart in the conventional group.

Hypothesis 1: There is no significant difference in the mean achievement scores of students taught Economics using graphic organizers strategy and scores of those taught using conventional method.

Table 3: Summary of ANCOVA for Students' Achievement Scores in EAT in Experimental and Conventional Groups

Source of Variation	Type III Sum of Squares	Df	Mean Square	F _{cal}	P-value
Corrected model	44304.51	2	649.729	50.415	0.000
Intercept	620.98	1	114805.489	8908.122	0.000
Pretest	6462.21	1	649.729	31.415	0.000
Groups	41308.83	1	554321	432.654	0.000
Error	5953.28	193	12.888		
Total	344586.01	195			
Corrected Total	50257.81	194			

Table 3 shows ANCOVA test for significant difference in the mean achievement scores of students taught Economics in experimental (Graphic Organizers Strategy) and Conventional Group. At $df=1, 193, F =432.654, p\text{-value}=0.000$ ($p<0.05$). This indicated that significant level is less than Alpha level ($p<0.05$). This suggested a statistically significant difference in the mean achievement scores of students taught Economics using graphic organizers strategy and scores of those taught using conventional method. Thus, the null hypothesis one was not retained. Hence, there was a difference in the mean achievement scores of students taught Economics using graphic organizers strategy and scores of those taught using conventional method.

Ho₂: There is no significant difference in the mean achievement scores of students taught Economics using graphic organizers strategy based on gender.

Table 4: Summary of ANCOVA for Male and Female Students' Achievement Scores in EAT in Experimental and Conventional Groups

Source of Variation	Type III Sum of Squares	Df	Mean Square	F _{cal}	Sig.
Corrected model	30304.51	2	33.464	1.222	0.000
Intercept	720.91	1	1796.722	65.636	0.000
Pretest	7462.21	1	55.829	2.039	0.000
Groups-Gender	41308.83	1	9.410	10.344	0.000
Error	5353.20	193	27.374		
Total	134586.01	195			
Corrected Total	360257.83	194			

Table 4 shows ANCOVA test for significant difference in the mean achievement scores of male and female students taught Economics in experimental (Graphic Organizers Strategy) and Conventional Group. At $df=1, 193, F=10.344, p\text{-value}=0.000$ ($p<0.05$). This indicated that significant level is less than Alpha level ($p<0.05$). This suggested a statistically significant difference in the mean achievement scores of male and female students taught Economics using graphic organizers strategy. Thus, the null hypothesis three was not retained. Hence, there was a difference in the mean achievement scores of male and female students taught Economics using graphic organizers strategy.

Discussion of Findings

Findings based on hypothesis 1 indicated the significant difference in the achievement means scores of students taught Economics in experimental and those taught using conventional method. This finding is in agreement with the findings of Bulus and Andrew (2021) which determined the effect of graphic advance organizer on motivation and academic achievement of senior secondary school Economics students and reported that students taught Economics concept using graphic advance organizer had high learning, motivation ability and were significantly better in their academic achievement as compared to those taught using lecture method. In addition, the findings are similar to that of Idiong, Eyenaka and John (2019) which examined the effect of Graphic Advance Organizers on academic performance and interest of Physics concepts among secondary schools and reported that there was a significant difference in the mean academic performance scores of the experimental and control groups. This result however contradicts the findings of Inuwa (2015) who investigated the impact of graphics on academic performance of Junior Secondary School Students in Social studies and reported there was no significant difference in the mean scores between the experimental and control groups.

Also, there was a significant difference in the achievement means scores of male and female students taught Economics using graphic organizers strategy. This finding is in agreement with the findings of Bash, Kurumeh and Samba (2020) which

investigated the effects of graphic organizer and experiential learning with feedback on students' achievement and interest in Basic Science and Technology and reported that there was significant difference in the mean achievement of male and female, in favour of female. Also, Owolabi and Adaramati (2015) investigated the effects of graphic organizer and gender on students' academic achievement in algebraic word problem and that the treatment appeared to be more effective among male students than their female counterparts; and the main effect of gender as well as the interaction effects of treatment. This result however contradicts the findings of Inuwa (2015) who investigated the impact of graphics on academic performance of Junior Secondary School Students in Social studies and reported that there was no significant difference in the mean scores of male and female Social Studies students exposed to graphics as a teaching - learning strategy.

Conclusion

It was concluded that graphic organizer has the potential of boosting/increasing senior secondary school Economics students' learning level, enhanced interest and academic achievement and is gender friendly. Moreso, graphic organizer strategy is more effective in the learning of Economics in our secondary schools. The use of graphic organizers is gender friendly as it promotes meaningful learning of concepts, students' academic achievement of both genders.

Recommendations

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

1. Economics teachers should adopt the use of graphic advance organizer in teaching Economics concepts because it boosts learning and academic achievement.
2. The government should ensure that Economics resource rooms are equipped with graphic organizer materials for easy access to teachers.
3. The government and educational bodies should ensure regular educational programmes, workshops, conferences, training and seminars geared to help upgrading teachers with new and current techniques and methods of teaching and learning Economics.
4. Regular use of instructional materials, different teaching methods should be encouraged among student teachers in teaching and learning exercise.

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