Effects of Integrated Group-Based Mastery Learning Model on Academic Achievement of Senior Secondary School Students in Economics

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Abstract

This study investigated the effects of Integrated Group-Based Mastery Learning Model on Economics students' academic achievement in senior secondary schools in Abuja (FCT). A quasi-experimental design of non-equivalent control group was adopted for the study with two in-tact classes. One of the two classes was used as the experimental group taught with integrated group based mastery learning model and the other as control group taught with the traditional teaching method. A purposive sampling technique was used to select 100 students for the study. The instrument used for the data collection was Economics Achievement Test (EAT). The reliability coefficient of 0.68 was obtained in pilot testing using Cronbach Alpha Statistics. One-way (ANOVA) Statistics was used to test the null hypotheses at 0.05 level of significance. The result showed that integrated mastering learning model was more effective in enhancing learning and better understanding of Economics than traditional teaching method. There was also a significant difference between male and female student's academic achievement as male performed better than their female counterparts. It was recommended that teachers should adopt mastering learning model to teach Economics.

Key Words: Integrated Group-Based Mastering Learning Model, Students' Academic Achievement

Introduction

The recent socio-political and economic changes in the world and within nations have brought about changes in educational goals and greater challenges for Economist. The schools are called not only to equip the learners with basic knowledge of Economics content but also with higher cognitive skills, such as problem solving and thinking skills that allow for self-development and continuous learning. To meet up with these challenges, there is a need to move away from the behaviourist method of direct teaching such as the lecture method or conventional teaching, note copying and dictations, where the learner is given contents to memorize and regurgitate to active learning or student centred method.

Economics as a subject offered at senior secondary school in Nigeria takes a central position in the areas of social sciences and business world. It is a subject that studies the structure of the economy, scarcity of resources and how these scarce resources are allocated among the competing wants of human beings. It is a study of man in relation to the scarce resources and the distribution of these scarce resources in order to satisfy human needs. It also study the circular flow of income between the household and the business unit, investment, consumption, savings and the multiplier effects of investment in the economy. The Economics variables are often displayed by means of mathematical tools such as charts, tables, graphs, percentages, simultaneous equation and linear equation to make the subject clearer to the learner.

The objectives of Economics curriculum at the senior secondary school level include: To enable students respond to turbulent world economic reality, sensitize students to sound economic principles and concepts and situate those principles within the frame work of Nigeria's own economic challenges (National Education Research and Development Council, 2012) to provide economic understanding necessary for responsible citizenship. Being a responsible citizen involves the ability to take rational decision on important Economic issues with a good basis for doing so, to decide the optimal allocation of scarce resources and also help improve the standard of living and make society a better place, to reconcile unlimited wants with limited resources which entails identifying problems and finding solutions to them to attain a higher standard of living.

The teaching of Economics is therefore an activity that involves both the teacher and the learner. The purpose of teaching is to ensure that learning takes place, while learning involves a behavioural change in the learner, Economics teaching involves the transmission of the relevant body of knowledge, attitudes, manner, dispositions, skills and values that enable the individual to survive in a growing and dynamic society.

However, as important as Economics is, parents, educators have been lamenting over the poor academic achievement of students in the subject in our senior secondary schools for the past decades (Ifeakor, 2010; Mari, 2011; Njoku, 2012; Nwachukwu 2013). Many factors have been attributed to the observed poor academic achievement

in Economics by students. Some of these factors include teaching method used by Economics teachers, difficult nature of the topics/concepts, lack of equipment and instructional materials etc. (Ali, 2012; Ifeakor, 2010; Nnaka 2016; Nzewi, 2010; Ukwungwu, 2015).

Students' poor academic achievement in Economics for quite a long time now, has resulted to inadequate number of students offering Economics in tertiary educational institutions in Nigeria. The persistent poor academic achievement has also contributed to poor economy, poor industrialization, poor investment strategies, unemployment, starvation, poor fiscal and monetary policy, poor economic planning and low economic growth, to mention but a few. Professionals required to take care of these problems can only be effectively produced through Economics education.

Many Economics concepts in the senior secondary school curriculum are perceived to be difficult to the learners especially interpretation of figure calculated and their implications for policy making. West African Examination Council Chief Examiner's reports (2014, 2015, and 2016) have consistently highlighted some of the difficult concepts/topics the candidates performed poorly as: elasticity of demand and supply, shift in demand, change in demand and supply, graphical illustration of economics variables, National income accounting and price and quantity determination under perfect and imperfect market. The report also goes further to enumerate candidates' weakness as poor language expressions, inability to adhere to instructions, poor interpretation of questions, inability to tackle numerical questions, poor definitions, omission/wrong units, inability to write balanced equations, use of formulae instead of names, poor drawing skills, inability to read and interpret graph, inability to draw sensible inference from recorded observations.

Ali (2012) stated that the most important factor for effective learning to take place is an interesting instructional approach. Njoku (2012) maintains that teachers are under intense pressure to cover the curriculum and get students ready for external examinations. This makes teaching of Economics inadequate as special approach needed for the teaching of difficult Economics concepts are over looked. Learners therefore, find the subject irrelevant to their daily experience and survival needs in their socio cultural and economic environment. Ezeliora (2014) also attributes students' poor academic achievement in Economics to poor instructional approaches involving excessive teacher-talk, copying of notes, rote learning as encouraged by conventional lecture method of instruction.

Poor instructional approach is therefore recognized as a major contributor to poor academic achievement in Economics. Nzewi (2010) and Nnaka (2016), suggest a shift and going beyond the conventional approaches of teaching Economics for better academic achievement in secondary school education. Shifting and going beyond the conventional teaching approaches according to Nnaka (2016) implies adopting the innovative approaches to teaching and learning of Economics.

In order to implement the national policy on education, government at all levels became more interested in the schooling process in terms of educational outcomes,

learning activities, instructional resources, instructional strategies and evaluation procedures. In view of this, emphasis has been on the need to:

a. Make educational activities center on the learner for maximum self-development and self-fulfillment.
b. Structure the educational system to develop the practice of self-learning Federal Republic of Nigeria (FRN, 2016. The implication of these for classroom teachers is that, they should develop a teaching approach which encourages the learners to participate in the learning processes.

Despite the efforts of Government in restructuring the educational system to develop the practice of self-learning, the dominant approach to instruction in schools has been the expository type especially since the inception of western education in Nigeria in 1843. Other methods of instruction were later introduced into the learning processes. For instance, since 1960, curriculum planners have emphasized the inquiry approach by claiming that carrying out investigations is the most promising method by which students will master inquiry skills and become literate in Economics (Schwab, Yager & Lutz, 2007). Even at that, it cannot be said that schools have done well in developing such skills in the learners.

Consequently, learners' individual needs, preferences and interest cannot be met by most strategies utilized in the traditional, expository method of teaching. This is one of the reasons the researchers are interested in trying out other method such as mastery learning strategy. If the objectives of Economics education are to be met, then the need to look for an alternative teaching paradigm in the form of an improved and effective teaching strategy that is result oriented becomes necessary.

According to Lynn, Douglas and Gerald (2009), Mastery Learning is an instructional process that provides students with multiple opportunities to demonstrate content mastery. Initial instruction is presented at a fast pace to engage all learners. Students who do not demonstrate mastery are given additional instruction specifically designed to correct their misunderstandings. Re-teaching should involve strategies that are different from the original instructional methods. For example, if the original material was presented in a lecture format with visuals, the re-teaching process might involve hands-on activities and cooperative learning strategies. A retest is later given to these students to allow them to demonstrate mastery, hence improve their understanding of the subject.

Gender and academic ability levels of students are also considered by the researchers as moderator variables. Gender as used here, refers to the physical and social conditions of an individual as being either a male or a female. Researches have shown varying results with regards to achievements in Economics of males and females. While Zembar and Blume (2011) and Awofala (2011) have found that males are better than females in Economics, Wade (2013), Joke (2014), Akinbola and Akinyemi (2005), Ajai and Imoko (2015), have reported that there is no significant gender difference in students' academic achievement in Economics.

In gender-equal societies, there are insignificant or no gender difference in Economics achievement. When both males and females are told they have equal potentials to be good in Economics, if needed resources to learn are provided, the researcher believes both will do well in the subject. What is needed by the students is proper orientation, the right opportunities and good training. Economics teachers (Ezeliora, 2014) cannot permeate the difficult Economics concepts which manifest in perennial poor students' achievement, the researcher therefore deemed it necessary to study the effects of integrated group-based mastering learning model on students' academic achievement in some difficult Economics concepts.

This instructional strategy had been found effective in overcoming other instructional problems such as large class size in Biology (Okebukola, 2011) and academic achievement of learning disabled in Mathematics (Igbo, 2013). It might therefore not be out of place to investigate the effects of this strategy on student's academic achievement in some difficult Economics concepts in an attempt to improve on student's academic achievement in Economics.

Statement of the Research Problem

The problem of student's poor academic achievement in Economics has been a major source of concern to parents, educational sector and researchers. The need for intervention is not only recognized but also acknowledged by all participants, the place of instructional methods employed by teachers is a major factor affecting student's academic achievement. In spite of the need for innovative approach to Economics teaching, the expository instructional approach is still practiced by teachers and this method stresses academic intellectual and cognitive aspect of teaching Economics which to a large extent neglects human, material, social and affective dimensions of Economics, thus, learners' individual needs, preferences and interest cannot be met by such method of teaching.

It has therefore, become necessary for teachers and researchers to look for ways of improving student's academic achievement in Economics. Is this instructional approach not likely to enhance students' academic achievement in Economics? Therefore, as a result of this, the researchers embark on a research to explore the effects of integrated group-based mastering learning model on academic achievement of senior secondary school student in Economics.

Purpose of the Study

The purpose of this study is to assess the relative effectiveness of integrated group based mastery learning models on students' academic achievement in Economics in senior secondary schools in the Federal capital Territory (FCT)-Abuja. The study is specifically aimed to:

a.   determine the achievement mean scores of Economics students taught using integrated group-based mastery learning model and their counterpart taught with traditional teaching method in the Federal Capital Territory (FCT) Abuja.

b.   compare the achievement mean scores of male and female Economics students taught using integrated group based mastery learning model and their counterpart taught with traditional teaching method in the Federal Capital Territory (FCT) Abuja.

Research Questions

Two research questions were raised to guide the study:

a.   What is the mean achievement scores of Economics students taught using integrated group-based mastery learning model and their counterpart taught with the traditional teaching method in the Federal Capital Territory (FCT)-Abuja?

b.   What are the mean achievement scores of male and female Economics students taught using integrated group-based mastery learning model and their counterpart taught with the traditional teaching method in the Federal Capital Territory (FCT)- Abuja?

Research Hypotheses

The following null hypotheses were formulated to give the study a direction:

Ho¹: *There is no significant differences between the achievements mean scores of Economics Students taught with the integrated group based mastery learning model and those taught with the traditional teaching method in the Federal Capital Territory (FCT) Abuja.*

Ho²: *There is no significant difference between the achievements mean scores of male and female Economics students taught with the integrated group based mastery learning model and those taught with the traditional teaching method in the Federal Capital Territory (FCT) Abuja.*

Methodology

This study investigated the effects of integrated group-based mastery learning model on academic achievement of students in Economics in Abuja senior secondary schools. The study employed quasi-experimental research design of non-equivalent control group for the study with two in-tact classes. The design involved two groups drawn from the sample population. One of the groups was experimental group and the other, the control group. The subjects were randomly assigned in to the two groups. The

experimental group was taught using the integrated group-based mastery learning model and the control group was taught with conventional lecture method.

The population for the study consist of 1000 students who offered Economics at senior secondary school II (SS2) in the 100 co-educational public secondary schools the Federal Capital

Territory (FCT) Abuja, Nigeria for the set 2022/2023 academic session. The sample size of 100 SS 1I Economics students' males and females from different public secondary schools in the study area were selected for the study. Purposive sampling technique was used to select six schools from the population. A simple random sampling technique was used to select three schools each and randomly assigned to treatment group (integrated group-based mastery learning model and traditional teaching methods and a control group). A research instrument for data collection was Economics Achievement Test (EAT) to measure the students' academic achievement. Logical consensus of the experts gave 0.80 indices of logical validity for EAT. The reliability coefficient of EAT was 0.70 using Cronbach Alpha Statistics. T-test statistics was used to test the two null hypotheses generated at 0.05 level of significance.

Results

Research Question1: What is the mean achievement scores of Economics students taught using integrated group-based mastery learning model and their counterpart taught with the traditional teaching method in the Federal Capital Territory (FCT) Abuja?

Table: 1 Mean Achievement scores and standard deviation of Economics students taught using integrated group based mastery learning model in pretest and posttest due to treatments

Treatment group	No of students	Pre-test		Post-test		
		Mean score	Standard deviation	Mean score	Standard deviation	Gain mean score
Integrated group based mastery learning model	50	60.2	15.66	81.184	11.2	31.96
Traditional teaching method	50	39.8	19.27	67.47	14.09	21.92

Table 1, results revealed that students taught using integrated group-based mastery learning model had the mean score of 60.2 in the pre-test while traditional teaching method had the mean score of 39.8. In the post-test, the students taught with integrated group-based mastery learning model had a mean score of 81.184 while students taught with traditional teaching method were 67.47 respectively.

Testing of Research Hypotheses

Ho[1]: *There is no significant difference between the achievements mean scores of Economics Students taught with the integrated group based mastery learning model and those taught with the traditional teaching method in the Federal Capital Territory (FCT) Abuja.*

Table 2: Analysis of t-test of posttest mean scores Economics students taught with the integrated based mastery learning model and those taught with the conventional lecture method.

Variables	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	3254.702	1	3254.702	13.834	.000
Within Groups	23056.245	98	235.268		
Total	26310.948	99			

From table 2 above, we can see that the result was significant at p<0.05 alpha level. From the table, it shows that the main effect was significant at p<0.05, the calculated F-value 13.834 falls within the rejection region, therefore, the null hypothesis stating a non-significant difference in the achievement of Economics students taught with integrated group-based mastering learning model and traditional teaching method was rejected.

Ho[2]: *There is no significant difference between the achievements mean scores of male and female Economics students taught with the integrated group based mastery learning model and those taught with the traditional teaching method in the Federal Capital Territory (FCT) Abuja.*

Table 3: One-way Analysis of Variance (ANOVA) of posttest mean scores on achievement of male and female Economics students taught with integrated group based mastering learning model and conventional lecture method

Variables	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	1012.003	1	1012.003	3.706	.060
Within Groups	13108.242	48	273.088		
Total	14120.245	49			

In the same manner, table 3 shows F-value calculated as 3.706 which falls outside the acceptance region, therefore, null hypothesis of no difference was rejected.

Discussion of Findings

The results of hypothesis one as shown in table 2 and 3 indicated that a significant difference was found to exist in the academic achievement of students taught with mastering learning model and conventional lecture method, students taught with mastering learning model performed significantly better than those taught with conventional lecture method, this implies that mastering learning model is effective in teaching Economics, this may be as a result of active involvement of students in the learning process.

This study is in line with the findings of Lynn, Douglas and Gerald (2009). Similarly, table 3 shows that a significant difference was found to exist between male and female students, as male students performed significantly better that their female counterparts, the study is supported by the findings of other researchers such as Zembar ,blume & Awofala (2011) who found that male students performed better than female students when exposed to mastering learning model.

Conclusion

The following conclusion was drawn from the study:

1. The students taught with integrated group-based mastery learning model understand the concepts taught in Economics more than their counterparts who were taught using traditional teaching method.
2. There was a significant gender difference in the students academic achievement in the two teaching methods.

Recommendations

In line with the findings and conclusion of this study, the following recommendations were made:

1. Economics teacher should implement the used of mastering learning strategies in teaching various concepts in Economics.
2. Teachers of Economics should try personalizing teaching method to bridge the gap between male and female academic achievement in Economics.
3. Teachers should also explore other active learning methods to explain various Economics concepts to the students.
4. Government should enforce the use of students' centered teaching strategies in all primary and secondary schools.

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