
EFFECTS OF INSTRUCTIONAL MATERIALS ON COGNITIVE ACHIEVEMENT OF SECONDARY SCHOOLS STUDENTS IN ECONOMICS IN GOMBE STATE, NIGERIA

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ABSTRACT

The study was carried out to investigate the Effect of use of Instructional Materials on Cognitive Achievement of Secondary Schools Students in Economics in Gombe Metropolis, Gombe State, Nigeria. The study had 2 specific objectives, 2 research questions and 2 null hypotheses. Quasi experimental design was used. The population of the study comprised of 1054 SS II economics students in 17 secondary schools in Gombe Metropolis. Government Day Secondary School Gandu (GDSSG) was purposively selected. The entire 120 SS II economics students of the school formed the sample. The students were divided into two groups (experimental and control group). Economics Cognitive Achievement Test (ECAT) of reliability 0.82 was used as instrument for the study. The experimental group was taught using instructional materials while the control group was taught without instructional materials. Data collected was analyzed using mean, standard deviation and t-test statistics. The findings revealed that students taught with instructional materials performed better than those taught without instructional materials. Also, there is no significant difference in the mean achievement scores of males and females' students. The null hypotheses tested at 0.05 level of significance indicated that there is significant difference between the achievement scores of those taught with instructional materials and those taught without instructional materials. It was therefore concluded that using instructional materials in teaching and learning in secondary schools has positive impact on student's academic performance. The study recommended among others that instructional materials be used in teaching and learning in secondary schools because it has positive impact on student's performance.

Key Words: Instructional Materials, Cognitive Achievement, Senior Secondary School Students, Economics

INTRODUCTION

The importance of economics as a subject to any nation cannot be over emphasized. It enables both leaders and citizens to understand basic economics concepts, principles as well as to understand, appreciate and seek to improve the economic situation for their own social good. According to Obemeata (2009), the understanding of economics is a pre-requisite for good citizenship. To him, the principal objective for teaching

economics should be "to provide economics 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. Knowledge of economics and ability to apply it to significant problems and issues are essential elements of responsible citizenship in a democratic society. Citizens must be able to comprehend and use basic economic concepts in order

to perform adequately as producers, consumers and investors. Knowledge and skills in economics, which are needed for citizenship, will not be learned by most individuals unless they are systematically and effectively taught in elementary and secondary schools using effective and appropriate instructional materials. Therefore, economics belongs in the core curriculum, the common learning experiences required of all students as part of their general education for citizenship.

In spite of the importance of economics as a subject in secondary school for good citizenship and national development, students have continued to show poor achievement due to non-use of instructional materials in teaching of the subject. Obemeata (2006) asserted that students' achievement in economics leaves much to be desired. A number of factors have been attributed to poor achievement in senior certificate examination in economics but one of such factors is non-use of instructional materials in teaching of the subject. Instructional materials are essential and significant tools needed for teaching and learning of school subjects to promote teachers' efficiency and improve students' performance. They make learning more interesting, practical, realistic and appealing. They also enable both the teachers and students to participate actively and effectively in lesson sessions. They give room for acquisition of skills and knowledge and development of self-confidence and self-actualization. Aguba (2009) defined teaching aids as those materials used for practical and demonstration in the class situation by students and teachers. Isola (2010) also described instructional materials as objects or devices that assist the teachers to present their lessons logically and sequentially to the learners. Edem (2007), sees instructional materials as audio visual materials or as innovations in teaching and learning. This involves the use of human effort, appropriate choice design and utilization of object to ensure effectiveness. It is

anything (Human effort, hardware, software, and improved materials) used to satisfy the educational means of the learners. It is an instructional device or technique or an expert brought in to teaching and learning interaction to facilitate sharing of experience, knowledge, skills, attitudes and values. Instructional materials are veritable channels in the classroom. Instructions given inform of practical work improve the learners level of understanding. It is a means of making teaching and learning process more meaningfully, effective, productive and understandable. The end result is the attainment of educational goals. Ogbondah (2008) alerted on the gross inadequacy and under-utilization of instructional materials necessary to compensate for the inadequacies of sense organs and to reinforce the capacity of dominant organs. He noted that school teachers should try their possible best in the provision of locally made materials in substitution for the standard ones to promote their lessons. Enaigbe (2009) noted that basic materials such as textbooks, chalkboard and essential equipment like computer, projector, television and video are not readily available in many schools. Kochhar (2012) supported that instructional materials are very significant learning and teaching tools. He suggested the needs for teachers to find necessary materials for instruction to supplement what textbooks provide in order to broaden concepts and arouse students' interests in the subject. According to Abolade (2009), the advantages of instructional materials are that they are cheaper to produce, useful in teaching large number of students at a time, encourage learners to pay proper attention and enhance their interest. However, Akinleye (2010) attested that effective teaching and learning requires a teacher to teach the students with instructional materials and use practical activities to make learning more vivid, logical, realistic and pragmatic.

The cognitive domain in education involves knowledge and the development of intellectual skills. It

includes the recognition of specific facts, procedural patterns and concepts that serve in the development of abilities and skills. They are brain-based skills needed to carry out any task from the simple to most complex. They have more to do with the mechanism of how we learn, remember and solve problem. Edinyang (2012) defined cognitive performance as the estimated student's learned reasoning and problem-solving abilities through verbal, quantitative and nonverbal test items. The test purports to assess students acquired reasoning abilities while also predicting achievement scores. Cognitive performance or achievement is commonly measured by examinations or continuous assessment (Abdulhamid, 2013). Students' cognitive performance refers to student's achievement at the end of learning experiences aimed at finding out the extent to which a student has achieved something, acquired certain information or mastered certain skill as a result of planned instruction or training. The use of appropriate instructional materials and various teaching methods adopted by the teachers helps to achieve this goal.

Literature search has revealed that, a number of studies have been carried out on the various aspects of instructional materials. Uyagu (2009) carried out a research on effects of instructional materials usage and teachers' quality on students' academic performance in science senior secondary schools in Zaria, Kaduna State. The findings revealed that students performed better when appropriate and improvised materials were made available and utilized in teaching science and teachers possessing good qualifications enhanced students' performance in science. Matthew & Onyejebu (2013) carried out a study on effects of use of instructional materials on students' cognitive achievement in agricultural science in secondary schools of Drumba South Local Government Area of Anambra State. The findings of the study revealed that students taught with instructional materials performed better than those taught without instructional materials and there is no

significant difference in the performance of male and female students taught with instructional materials. Ntasiobi, Francisca & Iheanyi (2014) carried out a study on effects of instructional materials on students' achievement in social studies in lower basic education in Nigeria. The findings of the study revealed that instructional materials facilitate the teaching of social studies. It also revealed that performance is enhanced when teachers use different types of instructional materials when teaching all subjects and particularly social studies. Abdu-Raheem (2016) conducted a study on effects of instructional materials on secondary school students' academic achievement in social studies in Ekiti State, Nigeria. Finding showed that instructional materials develop learners' intellectual abilities and attainment of teaching/learning objectives.

The above reviewed works have a relationship with the present study as they all focused on instructional materials; however, they also differed significantly from the present study in content, geographical scope, and methodology. Hence, the present study is aimed at investigating the effect of instructional materials on cognitive performance of secondary school students in economics in Gombe metropolis, Gombe state, Nigeria.

One of the major problems facing education sector in Nigeria is the low level of the performance of secondary school students in both local and standardized examinations. It has become a great concern for researchers, educators and all education stake-holders over the years. It was observed that students usually fail in examinations owing to improper teaching methods and lack of essential teaching aids for instructional delivery. (Afolabi, 2009). However, in Gombe state, the use of instructional materials in secondary schools is not encouraging. As a result, it makes the morale and interest of the students in economics very low. This is because teachers adopt the verbalistic and theoretical method as a way of teaching

and learning the subject, mainly due to non-use of instructional materials in teaching of the subject. It is therefore based on this background that the researcher intends to find out the effects of use of instructional materials on cognitive of secondary school students in economics in Gombe metropolis, Gombe State, Nigeria.

Objectives of the study

The aim of the study is to determine the effect of instructional material on cognitive performance of secondary school students in economics in Gombe metropolis, Gombe state, Nigeria. Specifically, the study intends to:

1. Find out the mean cognitive achievement scores of economics students taught with instructional materials and those taught without instructional material.
2. Find out the mean cognitive achievement scores of males and females economics students taught with instructional materials.

Research Questions

The following research questions guided the study

1. What is the mean cognitive achievement scores of economics students taught with instructional materials and those taught without instructional materials?
2. What is the mean cognitive achievement scores of males and females' economics students taught with instructional materials?

Hypotheses

1. There is no significant difference between the mean cognitive achievement scores of economics students taught with instructional materials and those taught without instructional materials.
2. There is no significant difference between the mean cognitive achievement scores of males and females economics students taught with instructional materials

METHODOLOGY

Quasi experimental design was used. The population of the study comprised of one thousand and fifty-four (1054) SS II economics students in the seventeen (17) secondary schools in Gombe Metropolis. Government Day Secondary School Gandu was purposely selected. The entire 120 SS II economics students of the school formed the sample of the study. The students were divided into two groups (experimental and control group). The experimental group was also divided in to males and females (that is, 24 males and 36 females). Economics Cognitive Achievement Test (ECAT) was used as instrument for the study; it was developed by the researcher and consists of twenty questions. The instrument was validated by professionals in the Department of Educational Foundations and Curriculum, Faculty of Education, Ahmadu Bello University Zaria. The reliability test was carried out by test-retest on 30 Economics Students of SS II in the study area. The reliability coefficient of 0.82 was obtained using Pearson Product Moment Correlation (PPMC) indicating that the instrument is highly reliable. There were two groups, the experimental group who were taught using instructional materials and the control group taught without instructional materials. The Economics teachers were used in administering the instrument for four periods of 35 minutes each per group. The research questions were answered using mean and standard deviation, while the hypotheses were tested at 0.05 level of significance using t-test Statistics.

RESULTS

Research Question One: What is the mean achievement scores of economics students taught with instructional materials and those taught without instructional materials?

Table 1: Mean Cognitive Achievement Scores and Standard Deviations of Economics Students Taught with Instructional Materials and those Taught without Instructional Materials.

Group	Number	Means	Standard Deviation
Experiment	60	15.3023	1.8124
Control	60	10.7924	4.4423
Total	120		

Table 1 above revealed the mean cognitive achievement scores of economics students taught with instructional materials and those taught without instructional materials, the mean achievement scores of experimental group and control group was 15.3023 and 10.7924 respectively, while the standard deviation was

1.8124 and 4.4423 respectively. The experimental group therefore performed better than the control group.

Research Question Two: What are the mean cognitive achievement scores of male and female economics students taught with instructional materials?

Table 2: Mean Cognitive Achievement Scores and Standard Deviation of Males and Females Economics Students Taught with Instructional Materials

Gender	Number	Means	Standard Deviation
Male	24	13.3521	3.9586
Female	36	13.3651	4.7621
Total	60		

Table 2 above shows the mean achievement scores and standard deviation of male and female students taught with instructional materials. The mean achievement score of male and female students were 13.3521 and 13.3651 respectively and their standard deviation was 3.9586 and 4.6721 respectively. This indicates that there is no much difference between mean

scores of male and female students taught with instructional materials.

Hypothesis One: There is no significant difference between the mean cognitive achievement scores of economics students taught with instructional materials and those taught without instructional materials.

Table 3: T-test Summary on Mean Cognitive Scores of Economics Students Taught with Instructional Materials and those Taught without Instructional Materials.

Variables	N	Mean	Std.	Df	t-cal	t-crit.	Sig.	Decision
Experimental	60	15.3023	1.8124	118	1.016	1.96	.872	Retained
Control	60	10.7624	4.4423					
Total	120							

Table 2 shows the t-test analysis of difference between the mean cognitive achievement scores of students taught with instructional materials and those taught without instructional materials. Results on the table revealed that calculated t-value (1.016) at 118 degrees of freedom and at 5% level of significance is less than t-critical value (1.96). Therefore, the null hypothesis was retained. This means that a significant

difference exists in the mean scores of students taught with instructional materials and those taught without instructional materials.

Hypothesis Two: There is no significant difference between the mean cognitive achievement scores of male and female economics students taught with instructional materials

Table 4: T-test Summary and Difference in the Mean Cognitive Achievement Scores of Male and Female Economics Students Taught with Instructional Materials.

Variables	N	Mean	Std.	Df	t-cal	t-crit.	Sig.	Decision
Male	24	15.3025	1.8126	58	1.421	1.96	.872	Retained
Female	36	10.7626	4.4425					
Total	60							

Table 4 shows the t-test analysis of difference in the mean achievement scores of males and females economics students taught with instructional materials. Results on the table revealed that calculated t-value (1.421) at 58 degrees of freedom and at 5% level of significance is less than t-critical value (1.96). Therefore, the null hypothesis was retained. This means that there is no significant difference in the mean scores of males and females economics students taught with instructional materials.

DISCUSSION

The first finding of the study revealed that students taught with instructional materials performed better than those taught without instructional materials. This finding was presented on table 1 by answer to research question one where the experimental group performed better than the control group. The T-test analysis used to test null hypothesis 1 as presented on Table 3 revealed that a significant difference exists in the mean cognitive scores of students taught with

instructional materials and those taught without instructional materials. This finding is in line with the work of Olagunju (2000) who found out that there was a remarkable difference in the achievement scores of students taught with various instructional materials and those not exposed to use of instructional materials. There is therefore a general consensus that instructional materials enhance teaching & learning and leads to better students' academic achievement. The finding is equally in line with the view of Acomolafe (2002) who asserted that instructional materials as the resources that the teacher and students uses to influence the effectiveness of teaching and learning process. It helps in the creative use of probability of the students which will make them learn and improve their performance of the skills that are to develop. The finding of this study is also in line with the study of Olumorin, Yusuf, Ajidagba and Jekayinfa (2010) who observed that instructional materials help teachers to teach conveniently and the learners to learn easily without any problem. They asserted that instructional materials have

direct contact with all sense organs and consequently lead to improvement in the performance of students.

The second finding of the study shows that there is no much difference between mean scores of males and females students taught with instructional materials. This finding was presented on table 2 by answer to research question 2 and the T-test analysis used to test null hypothesis 2 as presented on Table 4 where the findings revealed that the mean achievement scores of male and female students were almost the same. Alio and Ezemaenyi (2010) reported insignificant difference in the mean scores of male and female students taught with instructional materials. It can be deduced that gender plays no effect on the achievement of students exposed to instructional materials.

CONCLUSION

From the findings the study, it was concluded that students taught with instructional materials performed better than those taught without. This indicates that students learn and perform better when they are taught with instructional materials because the use of instructional materials gives the students the opportunity to see, feel and touch the materials during teaching thereby improving their cognitive performances.

RECOMMENDATIONS

Based on the findings of the study, the following recommendations were made

1. Economics teachers should always try their best to make use of available instructional materials where necessary to make their lessons more interesting because it has positive impact on student's performance.
2. School principals should also encourage improvisation of instructional materials by teachers and make sure that teachers use

instructional materials in their teaching all the time.

3. Workshops and seminars should be organized from time to time for teachers where they would be taught not only how to produce instructional material but also how to use them effectively for the achievement of educational goals.

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