

EFFECT OF STANDARDIZED AND IMPROVISED INSTRUCTIONAL MATERIALS ON STUDENTS' ACADEMIC ACHIEVEMENT IN ECONOMICS IN ABIA STATE, NIGERIA

By

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Abstract

This study investigated the effect of standardized and improvised instructional materials on senior secondary school students' academic achievement in Economics in Abia State, Nigeria. Specifically, the study determined the effect of standardized and improvised instructional materials on students' achievement in Economics and examined whether gender influenced students' achievement when taught using these instructional materials. A pretest-posttest quasi-experimental research design involving experimental and control groups was adopted. The population comprised Senior Secondary School II (SS II) Economics students, while a sample of 140 students participated in the study, with 73 students in the experimental group and 67 in the control group. Data were collected using an Economics Achievement Test (EAT), which was validated by experts, and its reliability was established before administration. Mean and standard deviation were used to answer the research questions, while Analysis of Covariance (ANCOVA) was employed to test the hypotheses at the 0.05 level of significance. The findings revealed that students taught Economics using standardized and improvised instructional materials achieved significantly higher than those taught using the conventional method, with the experimental group recording a mean gain score of 23.13 compared with 6.76 for the control group. ANCOVA further

indicated a statistically significant difference in the achievement scores of the two groups ($F = 12.025$, $p = .007$). The study also found that although both male and female students benefited from the instructional materials, there was no significant difference in their achievement based on gender ($F = 2.118$, $p = .215$). The study concluded that the use of standardized and improvised instructional materials enhances students' academic achievement in Economics irrespective of gender. It was therefore recommended that Economics teachers should integrate standardized and improvised instructional materials into classroom instruction and that regular training should be provided to equip teachers with the skills required for their effective development and utilization.

Keywords: *Standardized and Improved Instructional Materials, Students' Academic Achievement, Economics and Gender*

Introduction

Economics occupies a central position in the secondary school curriculum because it equips learners with the knowledge, skills, and attitudes required for rational decision-making, efficient resource allocation, entrepreneurship, and sustainable national development. In Nigeria, Economics is offered as a core social science subject at the senior secondary school level and serves as a prerequisite for admission into several professional disciplines, including Accounting, Banking and Finance, Business Administration, Marketing, Political Science, and Economics itself (Federal Republic of Nigeria [FRN], 2014, 2014; Uboh, 2022). As a social science, Economics examines how individuals, firms, and governments make choices regarding the utilization of limited resources to satisfy unlimited human wants (Robbins, as cited in Ideyi, 2019). Consequently, the subject serves as an important foundation for tertiary programmes such as Accounting, Banking and Finance, Business Administration, Marketing, Business Education, Political Science, and Economics. Beyond preparing learners for higher education, Economics can develop critical thinking, problem-solving, and analytical skills needed for active participation in contemporary society.

Recognizing its educational and socio-economic relevance, the Federal Republic of Nigeria incorporated Economics into the senior secondary school curriculum to enable learners acquire economic literacy and develop competencies for productive living (FRN, 2014). The curriculum emphasizes the development of learners' ability to understand economic concepts, make informed financial decisions, appreciate national and global economic issues, and contribute meaningfully to sustainable development. These objectives can only be achieved through effective instructional practices supported by appropriate teaching resources and learner-centred classroom activities (Nzewi & Nwosu, 2018).

Despite the strategic importance of Economics as a prerequisite for several tertiary programmes, including Accounting, Banking and Finance, Business Administration, Marketing, Business Education, Political Science, and Economics, students' academic achievement in the subject at the senior secondary school level has remained persistently low, as reflected in successive West African Examinations Council (WAEC) Chief Examiners' Reports (2023) and corroborated by the findings of Onah (2019) and Folorunso (2017). The WAEC Chief Examiners' Report (2023) indicated that many candidates demonstrated inadequate understanding of fundamental economic concepts, poor interpretation of economic questions, weak analytical skills, and inability to apply theoretical knowledge to practical situations. Similar observations were reported by Onah (2019), who attributed poor achievement partly to ineffective instructional practices, while Folorunso (2017) associated the persistent decline in students' performance with inadequate instructional resources and poor classroom delivery.

Educational researchers have consistently identified instructional materials as one of the major determinants of effective teaching and meaningful learning because they transform abstract concepts into concrete experiences, stimulate learners' interest, sustain attention, and encourage active classroom participation (Agwagah, 2020; Olagboye, 2023; Tella, 2023). Instructional materials therefore serve as essential tools through which teachers simplify complex concepts, improve classroom interaction, and facilitate learners' understanding of subject matter. When properly selected and effectively utilized, instructional materials promote learner-centred instruction and significantly improve students' academic achievement (Ahmed, 2017; Olagboye, 2023).

Unfortunately, many public secondary schools in Nigeria continue to experience inadequate provision and ineffective utilization of instructional materials for classroom instruction (Obiora, 2020). Researchers have reported that many Economics teachers rely heavily on verbal explanation and note dictation because appropriate teaching resources are either unavailable, inadequate, or poorly maintained (Folorunso, 2017; Mbatu, 2020). This teacher-centred approach often limits learners' participation, reduces conceptual understanding, and contributes to poor achievement in external examinations.

Instructional materials used in classroom instruction may either be standardized or improvised depending on their source and mode of production. Standardized instructional materials refer to factory-produced or professionally developed teaching resources specifically designed for classroom instruction (Sadker & Zittleman, 2022; Tella, 2023). These materials are generally validated, durable, and widely accepted for instructional purposes because they conform to established educational standards (Tella, 2023). Examples include multimedia projectors, computers, charts, maps, whiteboards, simulation packages, radios, and other commercially produced instructional resources. Although standardized instructional materials remain desirable,

their availability in many Nigerian secondary schools has continued to decline because of inadequate educational funding, rising costs of imported educational equipment, and poor maintenance culture (Abolade, 2017; Bassey, 2021). Consequently, many schools are unable to provide sufficient instructional resources needed for effective classroom instruction. This situation has increased the need for teachers to develop and utilize improvised instructional materials derived from locally available resources.

Improvisation refers to the process of producing suitable alternatives to standardized instructional materials by utilizing locally available resources whenever the original materials are unavailable or inadequate (Olagboye, 2023). Improvised instructional materials provide teachers with opportunities to adapt instruction to learners' immediate environment while reducing dependence on expensive imported resources (Esu, 2019). Besides addressing shortages of instructional resources, improvisation encourages creativity, innovation, problem-solving, and active learner participation during classroom instruction. Several empirical studies have demonstrated that appropriately designed improvised instructional materials can produce learning outcomes comparable to standardized instructional materials. For instance, Onasanya & Omosewo (2020), and Adeyemi and Olaleye (2020) reported that students who actively participated in the production and utilization of instructional materials achieved significantly higher scores than those taught without such materials. These findings suggest that instructional effectiveness depends not merely on the sophistication of instructional resources but also on their relevance, accessibility, and appropriate classroom utilization.

Apart from instructional materials, students' academic achievement has also been associated with demographic variables such as gender and school location. Gender has continued to receive considerable attention in educational research because differences in learning opportunities, classroom participation, and socio-cultural expectations may influence students' academic outcomes (Okeke, 2019). While some studies reported significant gender differences in achievement (Ogunleye, 2018; Madu, 2019), others found no significant differences when learners were exposed to effective instructional strategies and adequate learning resources. These inconsistent findings suggest the need for further empirical investigation within specific instructional contexts.

Similarly, school location has been identified as a factor capable of influencing students' learning experiences because schools located in rural communities often experience shortages of qualified teachers, instructional facilities, and educational infrastructure compared with their urban counterparts (Umeadi, 2019). Ubanatu (2021) reported that school location significantly influenced students' academic achievement, while other researchers argued that effective instructional strategies could minimize such disparities by providing equal learning opportunities regardless of geographical location (Wasagu, 2020). These conflicting findings further justify

continued investigation of instructional interventions capable of improving students' academic achievement across different school settings. Although previous studies have examined the influence of standardized and improvised instructional materials on students' achievement in subjects such as Physics, Biology, Chemistry, Basic Science, and Mathematics (Onasanya & Omosewo, 2016; Achor, 2017; Aremu, 2017; Eze & Agbomma, 2018; Wasagu, 2020; More, 2023), limited empirical attention has been devoted to comparing the effectiveness of these instructional materials in the teaching of Economics at the senior secondary school level in Abia State. Furthermore, inconsistencies in previous findings regarding gender-related differences and instructional effectiveness indicate the need for additional empirical evidence. It was on the premise that this study investigated the effect of standardized and improvised instructional materials on senior secondary school students' academic achievement in Economics in Abia State.

In teaching and learning, instructional materials play a key role towards concretizing learning. Instructional materials make learning meaningful and help to improve students academic achievement. However, these advantages of instructional materials have not reflected in the education system because of the dearth of these instructional materials in our schools. Hence, the need for alternative instructional materials called improvisation.

Economics is resource intensive, and in an era of poor funding or scarcity of resources, it may be very difficult to find some of the original materials and equipment for the teaching of Economics in schools adequately hence, improvisation becomes the next option. Evidence from the studies reviewed shows that failure rate in Economics at senior certificate examinations is high. This could be attributed to a number of factors; one of such factors is lack or total absence of instructional materials. This study therefore, is geared towards finding out if the use of standardized and improvised instructional materials could bring a solution to the problem of poor achievement of students in Economics. Hence, the problem of this study is therefore posed as a question; what is the effect of standardized and improvised instructional materials on students' achievement in Economics? The purpose of this study is to investigate the effect of standardized and improvised instructional materials on students' academic achievement in Economics. This study specifically sought to;

- 1 ascertain the mean achievement scores of students taught Economics using standardized and improvised instructional materials;
- 2 find out the effect of gender students taught Economics using standardized and improvised instructional materials;

The following research questions guided the study:

1. What is the mean achievement scores of students taught Economics using standardized and improvised instructional materials?
2. What is the effect of gender students taught Economics using standardized and improvised instructional materials;

The following null hypotheses were formulated to guide the study at 0.05 alpha level of significance.

- 1 There is no significant difference between the mean achievement scores of students taught Economics using standardized and improvised instructional materials.
- 2 Gender has no effect on students taught Economics using standardized and improvised instructional materials and those taught using lecture method.

Methodology

This study adopted a quasi-experimental pretest–posttest non-equivalent control group design. The design was considered appropriate because intact classes were used, making random assignment impracticable. The experimental group was taught Economics using standardized and improvised instructional materials, while the control group was taught the same concepts using the conventional teaching method. Both groups were pretested before the treatment and post-tested after the treatment.

The design is represented as follows:

Groups	Pretest	Treatment	Posttest
Experimental Group	O ₁	X	O ₂
Control Group	O ₃	–	O ₄

Key:

- O₁ = Pretest administered to the experimental group
- O₂ = Posttest administered to the experimental group
- O₃ = Pretest administered to the control group
- O₄ = Posttest administered to the control group
- X = Instruction using standardized and improvised instructional materials
- – = Conventional method of teaching (without standardized and improvised instructional materials)

The experiment lasted for four weeks, during which both the experimental and control groups received Economics lessons on the same topics. Prior to the commencement of the treatment, the Economics Achievement Test (EAT) was administered to both groups as a pretest to determine their baseline achievement levels. The experimental group was taught using standardized and improvised instructional materials, whereas the control group received instruction using the conventional teaching method. At the end of the treatment period, the same test, with items rearranged, was administered as a posttest to assess students' achievement. The pretest scores served as covariates during data analysis using Analysis of Covariance (ANCOVA).

The study was conducted in public secondary schools in Abia State, Nigeria. The population comprised 2,034 Senior Secondary II (SSII) Economics students in co-educational public secondary schools. A sample of 140 SSII students was selected from two purposively selected co-educational schools in Aba Education Zone using intact classes. One intact class (73 students: 35 males and 38 females) served as the experimental group, while the other (67 students: 32 males and 35 females) served as the control group. Schools were selected based on the availability of qualified Economics teachers, consistent presentation of candidates for WAEC and NECO examinations, and the presence of at least two intact SSII streams.

Data were collected using the Economics Achievement Test (EAT), a 50-item multiple-choice test developed from the SSII Economics curriculum covering Demand, Population, Money, Production, and Market Structure. The instrument was adapted from past WAEC examination questions. Face and content validity were established by three experts in Economics Education and Measurement and Evaluation from Michael Okpara University of Agriculture, Umudike. Following item analysis, 15 items that failed to meet acceptable difficulty and discrimination indices were removed, resulting in a final 35-item instrument. Reliability was established using the Kuder–Richardson Formula 20 (KR-20) with 30 SSII students from a school outside the study area, yielding a reliability coefficient of 0.75, indicating acceptable internal consistency.

Before the commencement of instruction, the EAT was administered to both groups as a pretest. The experimental group received instruction using standardized and improvised instructional materials, whereas the control group was taught the same Economics topics using the conventional lecture method. The treatment lasted eight weeks, with each lesson lasting approximately 40 minutes. At the end of the treatment, the EAT was re-administered as a posttest.

To minimize extraneous variables, regular Economics teachers served as research assistants after receiving training on the instructional procedures. Both groups were taught using identical lesson objectives and content, differing only in the instructional approach. Test sensitization was minimized by rearranging the order of the test items for the posttest, while Analysis of Covariance

(ANCOVA) was employed to control for initial group differences using pretest scores as the covariate.

Data were analyzed using mean and standard deviation to answer the research questions, while Analysis of Covariance (ANCOVA) was used to test the hypotheses at the 0.05 level of significance. The null hypothesis was rejected when the p-value was less than 0.05 and retained when the p-value was greater than or equal to 0.05. This analytical technique was considered appropriate because it adjusts for initial differences between non-equivalent groups by using pretest scores as the covariate.

Results

The results from the data analysis done were presented in the tables below:

Research Question 1

What are the mean achievement scores of students taught Economics using standardized and improvised instructional materials?

The data for answering research question 1 were analyzed with mean and standard deviation and results presented in the Table 4.1.

Table 1: Mean Achievement Scores of Students Taught Economics Using Standardized and Improvised Instructional Materials

Groups	Pretest			Post test		Mean gain scores
	N	$\bar{X}$	SD	$\bar{X}$	SD	
Experimental	73	27.18	3.28	50.31	5.21	23.13
Control	67	26.66	4.51	33.42	4.13	6.76

Data in Table 1 showed that the students taught Economics using standardized and improvised instructional materials had a Pretest mean of 27.18 with standard deviation of 3.28 and a Posttest mean of 50.31 with standard deviation of 5.21, while students taught Economics without standardized and improvised instructional materials had a Pre-test mean of 26.66 with standard deviation of 4.51 and a posttest mean score of 33.42 with the standard deviation of 4.13. The result also showed that the experimental group had a mean gain of 23.13 while control group had a mean gain of 6.76. This showed that standardized and improvised instructional materials had higher effect on the students' academic achievement in Economics.

A corresponding hypothesis that addressed the above research question is:

Hypothesis 1

There is no significant difference in the mean achievement scores of students taught Economics using standardized and improvised instructional materials.

The data for testing hypothesis 1 were analyzed with ANCOVA and the results presented in Table 2.

Table 2: Analysis of Covariance (ANCOVA) of Significant Difference in the Mean Achievement Scores of Students taught Economics using Standardized and Improved Instructional Materials

Source	Type III Sum of Squares	Df	Mean Square	F	P. value
Corrected Model	12237.1004	2	6118.550	332.440	.000
Intercept	1214.119	1	1214.119	65.967	.000
Pretest	7669.431	1	7669.431	416.704	.000
Group	221.322	1	221.322	12.025	.007
Error	2521.471	137	18.405		
Total	227408.213	140			
Corrected Total	14268.721	139			

Table 2 showed that the Probability (P)-value associated with F calculated value of 12.025 is 0.007. Since the Probability-value of 0.007 is less than 0.05 alpha level, the null hypothesis which stated that there is no significant difference in the mean achievement scores of students taught Economics using standardized and improvised instructional materials is thereby rejected. It implies that there was a significant difference in the mean achievement scores of students taught Economics using standardized and improvised instructional materials.

Research Question 2

What are the effect of gender on students taught Economics using standardized and improvised instructional materials?

The data for answering research question 2 were analyzed with mean and standard deviation and results presented in the Table 3.

Table 3: Gender effect on students taught Economics using standardized and improvised instructional materials?

Gender	N	Pretest		Posttest		Mean gain scores
		$\bar{X}$	SD	$\bar{X}$	SD	
Male	35	37.89	4.29	52.68	5.02	14.79
Female	38	38.45	3.61	52.21	5.74	13.76

Data in Table 3 showed that male students taught Economics using standardized and improvised instructional materials had pretest mean score of 37.89 with standard deviation of 4.29 while the female had a pretest mean score of 38.45 with standard deviation of 3.61. Similarly, male and female students taught Economics using standardized and improvised instructional materials had a posttest mean score of 52.68 and 52.21 respectively with standard deviations of 5.02 and 5.74. The Table further showed that the male students had higher mean gain of 14.79 than their female counterparts with mean gain of 13.76 indicating that standardized and improvised instructional materials had slightly increasing effect on the male students' academic achievements in Economics than on the female students.

A corresponding hypothesis that addressed the above research question is:

Hypothesis 2

Gender has no effect on students taught Economics using standardized and improvised instructional materials and those taught using lecture method?

The data for testing hypothesis 2 were analyzed with ANCOVA and the results presented in Table 4.

Table 4: Analysis of Covariance (ANCOVA) on gender effect on Students Taught Economics using Standardized and Improvised Instructional Materials

Source	Type III Sum of Squares	Df	Mean Square	F	P. value
Corrected Model	3203.615 ^a	3	2311.418	65.538	.000
Intercept	14331.215	1	14331.215	43.412	.000

Pretest	3437.444	1	3437.444	143.347	.000
Gender	67.113	1	67.113	2.118	.215
Error	5905.528	136	43.423		
Total	161325.076	140			
Corrected Total	3812.344	139			

The data in Table 4 revealed that the Probability (P)-value associated with F calculated value of 2.118 is 0.215. Since the Probability-value of 0.215 is greater than 0.05 alpha level, the null hypothesis which stated that there is no significant difference between the mean achievement scores of the female and male students taught Economics using standardized and improvised instructional materials is thereby upheld. It implies that gender has no effect on students taught Economics using standardized and improvised instructional materials and those taught using lecture method

Summary of the Findings

The following findings emerged from the study based on the data collected and analyzed to answer the research questions and to test the hypotheses.

1. Standardized and improvised instructional materials have statistical significant effect on students academic achievements in Economics. The students taught using standardized and improvised instructional materials had higher mean gain than those taught with the conventional method at .05 level of significance.
2. Standardized and improvised instructional materials had a positive effect on male and female senior secondary students achievement in Economics but higher in female senior secondary students than their male counterpart. In addition, gender has no effect on students taught Economics using standardized and improvised instructional materials and those taught using lecture method.

Discussion of the Study

The results of data analyses showed that Standardized and improvised instructional materials were better than the conventional method in enhancing secondary school students' academic achievements in Economics. This is because the students taught using standardized and improvised instructional materials had higher mean gain than those taught with the conventional method. The

finding is in line with the finding of Onasanya and Omosewo (2016) who discovered that there was significant difference between the students taught with standard and improvised instructional materials and those taught without instructional materials. The finding is also in line with the finding of Aremu (2017) who revealed that there is no significant difference between students taught with standardized instructional materials and those taught with improvised instructional materials.

The result further revealed that Standardized and improvised instructional materials had a positive effect on male and female senior secondary students achievement in Economics but higher in female senior secondary students than their male counterpart. In addition, gender has no effect on students taught Economics using standardized and improvised instructional materials and those taught using lecture method. The finding is similar with the finding of Onasanya and Omosewo (2016) who revealed that the improvised instructional materials in the comparison of the male mean scores of experimental and control groups were the same at entry level with regard to academic ability.

Conclusion

The study examined the effects of standardized and improvised instructional materials on students' academic achievement in Economics in Abia state. Based on the findings of the study, the researcher concluded that standardised instructional materials had higher effect on the students' academic achievement in Economics, than improvised instructional materials and that there was a significant difference in the mean achievement scores of students taught Economics using standardized and improvised instructional materials.

The researcher also concluded that male students taught with standardized instructional materials had more mean score than the students taught with improvised instructional materials, female students taught with standardized instructional materials had more mean score than the students taught with improvised instructional materials.

Recommendations

Based on the findings and conclusions of the study, the following recommendations were made.

- i. Standardized instructional material should be used in teaching Economics lessons in the classroom. The use of standardized instructional materials in teaching and learning of Economics will enable the students to develop critical skills needed for concept and knowledge construction which will help them to appreciate Economics better and improve on their achievements.

- ii. Economics teachers should be trained and retrained on the job to adopt the use of standardized instructional materials in the teaching and learning of Economics in the classroom. Training of these teachers could be done by the Government or relevant professional bodies like Science Teachers Association of Nigeria (STAN) through seminars, workshops and conferences.

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