
Effectiveness of Flipped Instructional Strategy on Students' Academic Performance in Economic in Calabar, Cross River State, Nigeria

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Abstract

The study looked into the effectiveness of a flipped instructional technique on the performance of students in economics in Calabar, Cross River State, Nigeria. A quasi-experimental design was used for the investigation. The study's population consisted of 500 secondary school kids. The study included a 200-person sample of secondary school students, with 100 males and 100 girls. A purposeful multi-stage random sampling procedure (stratified and sample sampling) was employed to choose the sample. Two research questions and two hypotheses were developed to lead the investigation. The Economic Performance Test ($r = 0.89$) was utilised to gather data. The data was evaluated using Analysis of Covariance (ANCOVA) at the 0.05 level of significance. The data revealed a significant discrepancy in the performance of Economics. Students who used the flipped classroom teaching technique outperformed those who used the lecture instruction strategy. Similarly, the current study's findings revealed that gender has no effect in students' academic achievement. Based on the findings, It was suggested that teachers make economics teaching-learning dynamic and activity-based for students, and that teachers employ a range of tactics to guarantee that all students benefit from the instruction, regardless of learning capacity.

Keywords: Flipped, instructional strategy, students, academic performance, economics

Introduction

Education is the bedrock of national development because good education has the potentials of changing the quality of life of people. Through education we gain knowledge of the world we live in and transform it. Academic performance or achievement is the consequence of education, i.e. the degree to which a student, instructor, or institution meets their educational objectives. Jimoh, Idris, and Olatunji (2016) define academic achievement as the level of success gained by students after being exposed to one type of learning or another. According to Jimoh (2014), academic achievement refers to students' success in school topics. According to Ezenwosu and Nworgu (2013), academic achievement is frequently monitored through classroom exercises, assignments, continual assessment, and internal and external examinations. It can be used to reflect students' level of accomplishment in a previous task, as well as to determine students' ability to effectively complete another task (Jimoh, 2014).

According to Ezenwosu and Nworgu (2013), academic achievement is frequently monitored through classroom exercises, assignments, continual assessment, and internal and external examinations. It can be used to reflect students' level of accomplishment in a previous task, as well as to determine students' ability to effectively complete another task (Jimoh, 2014). Adunfe (2005) defines the lecture method as a teaching style in which the teacher delivers pre-packaged educational content to a large audience with minimal student-teacher interaction. To increase students' academic results in Economics, instructional strategies that allow them to think, discover facts, and create self-confidence in problem solving are required.

Economics, geography, and history are some examples of social science subjects. Economics teaches clear reasoning and logical thinking. It not only benefits people like Dowell personally and professionally, but it also helps students prepare for undergraduate programmes. Economics is the most significant subject today. Economics governs the lives of individuals, societies, and modern governments. The subject plays an important part in world affairs. Economic knowledge may help solve a variety of problems, including shortages, enacting legislation, developing budgets, increasing national wealth, effective budgeting, production methods, and so on. Economics can help us sort things out and find answers to such questions. Economics enables individuals to think strategically and make decisions that optimise the outcome. It aims to explain what motivates human behaviour and reactions when faced with adversity or achievement. Economics is a field that encompasses politics, sociology, psychology, and history.

Furthermore, in the twenty-first century, there is a need to shift from the traditional way of classroom instruction to a learner-centered instructional strategy. One of the tactics used to instruct students is the flipped instructional classroom strategy. The flipped instructional classroom strategy entails students reviewing instructional videos prepared by the instructor prior to class sessions and using class time to engage in meaningful learning activities such as instructor-guided problem solving and discussion (Bergman, Overmyer, & Willies, 2013). The flipped classroom strategy is an educational instructional approach in which students watch pre-recorded teaching videos on digital devices at home, in a library, or anyplace instructional resources are available (Alvalz, 2012; Bergman & Sam, 2012; Fulton, 2012).

According to Yükseli and Şevki Kömür (2017), online videos and other technology-based materials have gained popularity among scholars and lecturers in recent years, as communicative language teaching theories spread globally. The teacher would expect the students to have completed the assigned work as well as prepared for discussions and explanations of the subjects they have studied in preparation for the next session; in this situation, what the students would normally do at home is now what they do in school. For example, the flipped instructional classroom technique is a new innovative teaching and learning strategy in Nigeria's educational system that emphasises student-centeredness rather than teacher-centeredness ways of teaching and learning. According to Saunders (2014), the teacher's pedagogical style is critical to students' academic progress and can have a substantial impact on how students perceive a certain subject or even education in general. He saw that teachers represent their subjects at all times and places, and so the manner they teach may encourage or discourage students from pursuing the subject.

Objective of the study

The main purpose of this study was to investigate the effectiveness of effectiveness of flipped instructional strategy on students' academic performance in Economic in Calabar, Cross River State, Nigeria. Specifically, the study seeks to:

- I. Determine the impact of flipped classroom instructional strategy have on students' academic achievement in Economic as compare to lecture instructional strategy

- II. Find the differences in the mean achievement scores of male and female

students taught Economic using flipped classroom instructional strategy.

Statement of hypothesis

The following hypotheses were formulated to guide this study:

- I. There is no significant difference in the achievement scores of students taught Economics using flipped classroom instructional strategy and those taught using lecture strategy.

- II. There is no significant difference in the mean achievement scores of male and female students taught Economics using flipped classroom instructional strategy.

Literature Review/Theoretical Framework

Flipped Classroom Instructional Strategy and Students' Academic Achievement

The flipped classroom instructional technique is an educational approach in which students watch pre-recorded training on technological devices at home, in a library, or anyplace instructional resources are available. Several researchers have investigated this strategy. Nja, Orim, Neji, Ukwetang, Uwe, and Ideba (2022) looked into students' attitudes and academic performance in a flipped classroom. The study employed a quasi-non-equivalent, non-randomized factorial design. A 30-item questionnaire was administered to 100 students to examine their attitudes towards chemistry. The pre-test was separated into two groups: control and experimental. The experimental group was then taught utilising a flipped classroom style, while the control group was taught standard methods. Students in the experimental group then took a post-attitude test. The experimental and control groups each received a post-test. The post-attitude result showed a significantly higher mean than the pre-attitude score. The findings of the analysis using the sample t-test demonstrated that students had a positive attitude towards chemistry when taught in a flipped classroom. The study also sought to examine the academic performance of students taught with and without the flipped classroom technique. The study's findings revealed that kids performed significantly better academically than the normal group. These data suggest that the flipped classroom technique may improve students' attitudes towards chemistry, resulting in higher academic accomplishment. This allows students to watch the lesson videos over and again in the comfort of their own homes, ensuring that they understand the topics being taught. The study's conclusions are especially relevant to economics learning and instruction in

secondary schools in poor nations such as Nigeria.

Kaushai, Chang-Nan, and Chunyen (2015) used a pre-test, post-test quasi-experimental design to study the impact of the flipped classroom on high school mathematics concept learning. The study involved 82 high school students aged 14 to 15. The experimental group was made up of 41 participants (28 men and 13 women), while the control group had 41 people (24 men and 17 women). They classified the achievers in each group into three levels: high, average, and low. Students who scored 75-100 were labelled as high achievers, those who scored 60-74 as regular achievers, and those who scored less than 60 as low achievers. The experimental group was taught trigonometry utilising a flipped classroom approach, whereas the control group was taught the same lesson using a standard learning style. The researchers administered pre- and post-tests to both groups to determine whether the learning outcomes would be the same with the same instructor. The results showed that students in the experimental group who used the flipped classroom method did better than those in the control group (Olahanmi, 2016).

In the same line, Charles-Ogan and Williams (2015) undertook a study to compare the benefits of a flipped classroom to a traditional setting in terms of student maths achievement. They used 100 students from Hallmark Academy in Rivers State, divided into two groups: experimental and control groups. The experimental group gained an average of 28.60 from an offline video CD Mathematics lesson, while the control group gained an average of 16.62. They concluded that the flipped classroom promotes peer instruction, gives a mechanism of assessing students' comprehension, and that teaching and learning become more engaging when students are directly participating in the learning process (Olahanmi, 2016).

Shahzad, Zaibunnisa, and Musarrat (2021) conducted research to determine the impact of video-based learning websites on student academic performance. This study used qualitative research methodology and an interview strategy. The respondent is chosen using the purposive sampling method. To collect data, a semi-structured, open-ended questionnaire was used, and the results were obtained through manual interview content analysis. The study's findings show that video-based learning websites are extremely popular in the education sector; they improve students' listening, speaking, and writing skills, as well as their in-depth knowledge of the subject, so they are widely used for educational capacity building.

Gender and Flipped Classroom Instructional Strategy on Academic Performance

Gender is a moderating factor in this study. Several academics have conducted studies on this gender, linking it to students' academic ability. Kadry and El-Hani (2014) conducted study on the flipped classroom model for calculus II. The students' performance in the exam was used to calculate their scores, which ranged from 0 to 100. There were 120 people that completed the quiz. Students performed better in the flipped classroom compared to the usual approach. The performance of male and female models for 60 students was compared. Female participants in the flipped classroom model did better. Although the mean scores were higher in the flipped classrooms, the t-test for independent samples showed that the difference in the means between the groups were not significant. ($p > .05$) different.

Schultz, Duffield, Rasmuseuin, and Wageman (2013) investigated the effects of a flipped classroom approach on students' performance in advanced placement high school chemistry classes. The research used a mixed method approach that included both quantitative and qualitative methodologies. They employed a quasi-experimental design to see whether there is a difference in academic achievement between students taught using traditional methods and those taught utilising the flipped classroom technique. The findings revealed a substantial difference in the performance of students taught in the flipped classroom versus those taught in the traditional classroom. The researchers went on to investigate whether there were gender differences in academic achievement between the control and experimental groups. However, the results showed a substantial ($p > .05$) difference in kids' academic achievement across eight exams for both groups. It was revealed that male students in the flipped class outperformed their female counterparts in the teacher-centered approach. However, females in the classroom that was not flipped scored higher on average.

Theoretical Framework

This study draws on Piaget's cognitive constructivist learning theory (1973) and Vygotsky's social constructivist learning theory (1972). According to Piaget's cognitive constructivist theory, children progress through four stages that reflect qualitative changes in their cognitive abilities. According to him, a child's comprehension grows through exploration and experience with his or her environment. Vygotsky is among those who believe that children actively construct their own knowledge. Vygotsky saw cognitive development as the result of a dialectical process in which the child learns through collaborative problem-solving experiences with others, including teachers, parents, siblings,

and peers. As a social constructivist thinker, Vygotsky highlights the social context of learning, as well as the notion that knowledge is generated and constructed collectively. It also stresses the advantages of working in groups and with a more qualified teacher; an individual can assist learners in progressing from their zone of proximal development to greater levels of skills and competences.

The above ideas serve a vital role in education by guiding students in gaining the abilities that are required in the culture in which they live. The teacher should also provide several opportunities for children to learn alongside the teacher and more skilled peers. This thesis demonstrates that science should be taught in such a way that students can use their knowledge outside of the classroom. The guided discovery teaching technique can help with this.

Methodology

This was a quasi-experimental study that sought to investigate the impact of a flipped classroom instructional technique on students' academic progress in Economics. The pre- and post-test control group designs were found suitable for this study. A pre-test and post-test of a 2 x 2 x 3 experimental design were utilised. The experimental levels are given as follows: There are two levels of teaching and learning methodologies (flipped classroom and lecture strategies), two levels of gender (male and female), and three levels of scoring. The survey included 219 students from two purposefully selected senior secondary schools in the Calabar Education Zone of Cross River State that offered Economics. The schools were labelled A and B, with A serving as the experimental and B as the control groups.

Research Instrument

The primary data collection method was a 20-item multiple-choice Economics Achievement Test (EAT) based on previous West Africa Senior School Certificate Economics Examinations (WASSCE) questions. The lowest and maximum scores of 0 and 20 were intended to represent the limits within which both groups' performance should fall (0-6 classed as low scoring, 7-13 as medium scoring, and 14-20 as high scoring students). To guarantee reliability, the test was given to an entire class from two non-participating schools. After two (2) weeks, the same test was given to the same group of students. Their scores were linked using Pearson's Product Moment Correlation correlation Method, resulting in a correlation of 0.61.

The instructional tools were lesson plans based on the flipped classroom learning technique and the lecture strategy for teaching the experimental and control

groups, respectively. The flipped classroom learning approach prioritises student participation, necessitating substantial interaction between the researcher, students, and instructional resources. The control group was taught solely in the non-flipped classroom manner, so they were only exposed to the lecture technique. Instructions were mostly verbal, with little interaction between students and educational materials. The experimental group was taught personally by the researcher and research assistant, while the control group was taught with the assistance of the typical Economics teacher.

Throughout the therapy period, two forty-minute sessions were held each week. The study lasted six (6) weeks, with three (3) weeks of instruction and the first, second, and final weeks dedicated to preparation, pretesting, and post-testing, respectively.

A total of 219 copies of the instrument were administered to the 219 Economics students in the four public (government approved) secondary schools in the study area. However, 200 were returned and used for the analysis.

Results and Discussion of Findings

This section re-states each hypothesis and presents the results of the data analysis used to test it. Each hypothesis in the study was evaluated at the 0.05 level of significance. All hypotheses were investigated using analysis of covariance (ANCOVA). This is because 'ANCOVA' is the appropriate statistic to use for evaluating hypotheses involving more than two independent variables.

Hypothesis 1

There is no significant difference in the achievement scores of students taught Economics using flipped classroom instructional strategy and those taught using lecture strategy. The hypothesis was tested with analysis of covariance (ANCOVA). The summary of result is as presented in table 1

Table 1

Analysis of Co-variance of the difference in Mean Scores of Experimental and Control Groups in the schools of study

Variable	N	X	SD			
Experimental group	100	13.14	2.32			
Control group	100	6.40	2.51			
Total	200	9.77	2.42			
Source of variation	SS	Df	MS	F	Sig.	
Corrected model	2723.22 ^a	2	1332.32	31.456	.000 ^b	
Intercept	1731.13	1	1731.13			
Experimental/Control	2413.20	1	1132.32	35.21		
Pretest	131.34	1	1371.34	33.72		
Error	122.12	1	3.315	38.37		
	2333.02	198		18.12		
Total	3073.20	200				
Corrected Total						

*significant at .05; df 1, 1 & 198; critical f-value = 2.33

The computed F-value (18.12) exceeds both the crucial F-value (2.33) and the p-value ($p = 0.000$), as seen in the table above. Hence, the finding is noteworthy. As a result, there is a substantial difference in mean scores between the experimental and control groups in the schools of study that apply the flipped classroom instructional technique. That is, there was a considerable impact of the flipped classroom instructional technique against the lecture strategy.

Hypothesis 2

There is no significant difference in mean achievement scores between male and female students taught Economics using the flipped classroom instructional technique. Covariance analysis was used to assess the data collected for this hypothesis. The summary of results is shown in table 2.

Table 2

Analysis of Covariance of difference in the mean achievement scores of gender on student's academic achievement in Economics

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	77.924(a)	3	18.724	.589	.671
Intercept	23872.434	1	23872.434	819.139	.000
Pretest	7.835	1	7.520	.243	.617
Sex*	28.247	2	26.045	.046	.086
Error	7240.256	197	31.607		
Total	145226.000	200			
Corrected Total	7641.642	199			

*significant at .05; df 1, 1 & 198; critical f-value = 2.33

The analytical results, as shown in table 2, demonstrated that gender had no significant influence ($F = .046$; $P = .086$). The p-value was much higher than the f-calculated value. As a result, the null hypothesis was retained in terms of gender influence. This finding implies that gender has no substantial impact on students' achievement in Economics when taught utilising a flipped classroom teaching style. As a result, gender had no bearing on students' academic achievement in Economics.

Discussion of Findings

The first hypothesis holds that there is no significant difference in accomplishment scores between students taught Economics using a flipped classroom instructional technique and those taught using a lecture instructional strategy. This null hypothesis was rejected because the calculated F-values obtained from the data analysis were statistically greater than the critical F-value of .05, implying that the flipped classroom instructional strategy has a significant influence on students' economic achievement.

The findings of hypothesis one are consistent with the previous findings of Nja, Orim, Neji, Ukwetang, Uwe, and Ideba (2022), who conducted a study to investigate students' attitudes and academic achievement in a flipped classroom. According to the findings of the academic achievement inquiry, students who used the flipped classroom performed much better than those in the conventional group. The consequences of these findings are that the flipped classroom technique may improve students' attitudes towards chemistry, consequently increasing their academic achievement. The findings are also consistent with

those of Kaushai, Chang-Nan, and Chunyen (2015), who employed a pre-test, post-test, quasi-experimental method to investigate the influence of flipped classrooms on mathematics concept learning in high school. The results showed that students in the experimental group who employed the flipped classroom method outperformed those in the control group.

The second hypothesis asserts that there is no significant difference in mean achievement scores between male and female students taught Economics utilising a flipped classroom instructional style. The findings reveal that gender has no substantial impact on students' ability in Economics when taught utilising a flipped classroom instructional style. As a result, hypothesis 2 was retained. The findings of this hypothesis are consistent with the prior findings of Kadry and El-Hani (2014), who investigated the flipped classroom model method for calculus II. The performance of male and female models for 60 students was compared. Female participants in the flipped classroom model did better.

In the same line, the findings of hypothesis two were consistent with the earlier findings of Schultz, Duffield, Rasmuseuin, and Wageman (2013), who conducted research on the effects of a flipped classroom model on students' performance for advanced placement high school chemistry students. The researchers went on to investigate whether there were gender differences in academic achievement between the control and experimental groups. It was revealed that male students in the flipped class outperformed their female counterparts in the teacher-centered approach. However, females in the classroom that was not flipped scored higher on average.

Conclusion

The literature reviewed contains ample evidence that students continue to do badly in Economics, despite its important role in a nation's scientific and technological growth. Poor teaching methods, the foundational and abstract character of Economics topics, and individual cognitive styles have all been highlighted as contributing factors. Against this context, the current study was conducted to investigate the impact of a flipped classroom instructional technique on senior secondary school students' academic progress in economics. The results of this study revealed a substantial difference in the performance of Economics students taught using a flipped classroom instructional method versus students taught using a lecture instructional strategy. Similarly, the current study's findings indicate that gender has no influence on students' academic achievement. The study's findings also demonstrate a significant difference in mean scores between experimental and control groups in the schools of study that used flipped classroom instructional methodologies. As a result, the study

demonstrated the effectiveness of a flipped classroom instructional technique in enhancing students' academic ability in economics.

Recommendations

In accordance with the conclusions of this study, the following are recommended:

1. Teachers should make economics teaching and learning dynamic and activity-based for their students. Teachers should employ a variety of tactics when teaching Economics so that all students, regardless of ability level, can benefit from the lessons.
2. Ministries of Education at both the federal and state levels should schedule frequent workshops for teachers and devise a method of reviewing and measuring the impact of teaching practices.

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