EFFECTS OF LECTURE TEACHING METHOD AND COMPUTER AIDED INSTRUCTION ON BUSINESS STUDIES STUDENTS' ACADEMIC ACHIEVEMENT IN SECONDARY SCHOOLS IN ANAMBRA STATE

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Abstract
This study examined the effects of lecture teaching method (LTM) and computer-aided instruction (CAI) on the academic achievement of Business Studies students in secondary schools in Anambra State, with particular attention to gender differences. A quasi-experimental pretest–posttest design was employed. The sample comprised 130 Junior Secondary School II (JSS II) students (50 males and 80 females) selected from two public secondary schools in Awka South and Njikoka Local Government Areas. Data were collected using the Business Studies Achievement Test (BSAT), which had a validity index of 0.89 and a reliability coefficient of 0.82. The BSAT was administered as a pre-test and post-test to both experimental and control groups. The experimental group was taught using computer-aided instruction, while the control group was taught using the lecture method for six weeks. Mean, standard deviation, and Analysis of Covariance (ANCOVA) were used for data analysis at 0.05 level of significance. Findings of the study revealed that students taught using CAI achieved higher mean scores than those taught using the lecture method. However, although male students recorded slightly higher mean scores than female students, the differences were not statistically significant. The study concluded that computer-aided instruction is more effective than the lecture method in enhancing students' academic achievement in Business Studies, irrespective of gender. It was recommended among others that Business Studies teachers should adopt computer-aided instruction to enhance students' academic achievement.

Key Words: Lecture Teaching Method (LTM), Computer-Aided Instruction (CAI), Academic Achievement, Business Studies Students, Secondary Schools.

Introduction
Education is an instrument for equipping individuals with the skills and knowledge necessary to become productive members of society. It enables individuals to think critically and behave in ways that contribute to societal development. Education equips individuals

with the knowledge, skills, and attitudes required to function effectively in society and contributes significantly to national scientific and technological development (Ogundare and Ibeneme, 2022). One important means through which education supports technological advancement is the teaching of business studies at the secondary school level.

Business studies is a core subject designed to equip students with personal, consumer, clerical, and managerial skills necessary for adapting to changing economic and business environments (Okoye and Ndoeche, 2022). It is a practical and skill-oriented subject that prepares learners for paid employment or self-employment (Aliyu, 2016; Ogben and Amachi, 2018). At the junior secondary level, business studies is an integrated pre-vocational subject comprising commerce, bookkeeping, office practice, shorthand, and typewriting (Gambari, Yusuf and Thomas, 2015). Owing to its dynamic nature, the subject requires teachers to continually update their knowledge and instructional practices.

Despite the objectives of business studies, students' performance in the Junior Secondary School Certificate Examination (JSSCE) has remained persistently low. Reports from Anambra State indicate that nearly half of the candidates failed to obtain credit passes in business studies between 2022 and 2024 (Anambra State Ministry of Education, 2025). This poor performance has been attributed to several factors, particularly the teaching methods employed in classrooms (Ilojeme and Okorieocha, 2021).

Teaching methods refer to the strategies and techniques used by teachers to facilitate learning. Afzad and Kalam (2021) emphasized that effective teaching methods must align with learners' characteristics and instructional objectives. Teaching approaches are broadly classified into teacher-centered and student-centered methods. The lecture method, a traditional teacher-centered approach, is characterized by teacher dominance and passive student participation. it is useful to note that although Lecture Teaching Method is beneficial for managing large classes and covering content quickly, it often fails to promote critical thinking and active learning (Paris, 2020; Idika, 2021).

In contrast, computer-aided instruction (CAI) is a student-centered approach that integrates multimedia elements such as text, images, audio, and video to enhance understanding and engagement (Bello, Kamar, Yushau and Abubakar, 2022). CAI promotes interactive and individualized learning, allowing students to learn at their own pace and has been found applicable across subject areas and educational levels (Nannim, 2018; Okoli and Onyeagba, 2016). Academic achievement in this study refers to students' performance in business studies as measured through pre-test and post-test scores.

Gender differences in academic achievement have produced mixed findings, with some studies indicating female advantage in CAI-based learning and others reporting no significant difference (Edeh, Akindutire, Ugboaja, Ohwo, Umoke, and Osijirin., 2021; Ilojeme and Okorieocha, 2021). Additional challenges affecting achievement include poor instructional innovation, low student participation, inadequate evaluation practices, teacher qualification issues, and student-related factors (Okafor and Samuel, 2020). These concerns highlight the need for innovative teaching approaches. Therefore, this study examined the effects of the lecture method and computer-aided instruction on the academic achievement of business studies students in secondary schools in Anambra State.

Statement of the Problem

Business studies is intended to equip junior secondary school students with practical and vocational skills for employment and self-reliance. However, despite its importance, students' academic achievement in business studies in the Junior Secondary School Certificate Examination (JSSCE) has remained consistently low in Anambra State. Examination reports between 2022 and 2024 indicate that a large proportion of students failed to obtain credit passes, raising concern among educators and other stakeholders.

One major factor contributing to this poor performance is the instructional method commonly used in teaching business studies. The lecture method, which dominates classroom practice, is teacher-centered and encourages passive learning, limiting students' participation and understanding. Although computer-aided instruction (CAI) has been identified as an innovative, student-centered approach capable of enhancing engagement and learning, its effectiveness in improving students' academic achievement in business studies, relative to the lecture method, has not been adequately established in secondary schools in Anambra State. Furthermore, empirical findings on the influence of gender on students' academic achievement when taught using CAI remain inconsistent. Therefore, there is a need to investigate the effects of the lecture method and computer-aided instruction on the academic achievement of business studies students in secondary schools in Anambra State, with particular attention to gender differences.

Purpose of the Study

The purpose of the study was to determine the comparative effectiveness of lecture teaching method and computer aided instruction on Business Studies students' academic achievement in secondary schools in Anambra State. Specifically, the study determined the:

1. Difference between the pre-test and post-test mean achievement scores of students taught business studies using Lecture Teaching Method (LTM) and that of those taught using Computer Aided Instruction (CAI).
2. Difference between the pre-test and post-test mean achievement scores of male and female students taught business studies using Lecture Teaching Method (LTM) and that of those taught using Computer Aided Instruction (CAI).

Research Questions

The following research questions guided the study:

1. What is the difference between the pre-test and post-test mean achievement scores of students taught business studies using Lecture Teaching Method (LTM) and those taught using Computer Aided Instruction (CAI)?
2. What is the difference between the pre-test and post-test mean achievement scores of male and female students taught business studies using Lecture Teaching Method (LTM) and that of those taught using Computer Aided Instruction (CAI)?

Hypotheses

The following null hypotheses were tested at 0.05 level of significance:

1. There is no significant difference in the mean achievement scores of students taught business studies using Lecture Teaching Method (LTM) and those taught using Computer Aided Instruction (CAI).
2. There is no significant difference in the mean achievement scores of male and female students taught business studies using Lecture Teaching Method (LTM)

Methods

The study adopted a quasi-experimental pretest and posttest design. The sample consisted of 130 Junior Secondary School II (JSS II) Business Studies students (50 males and 80 females) drawn from two junior secondary schools in Awka South and Njikoka Local Government Areas of Anambra State. The students were selected using a combination of multi-stage, stratified, purposive, and simple random sampling techniques. Data were collected using the Business Studies Achievement Test (BSAT), which was developed by the researcher to measure students' academic achievement in Business Studies. The instrument

was validated by experts, yielding a validity index of 0.88, while its reliability coefficient was determined to be 0.81. The BSAT was administered to both the experimental and control groups as a pretest before treatment and as a posttest after treatment. The experimental group was taught selected Business Studies concepts using Computer-Aided Instruction (CAI), while the control group was taught using the conventional lecture method. The treatment lasted for six weeks. In the CAI group, lessons were presented through a computer-based instructional package that incorporated text, visuals, explanations, and simulations, with students actively participating in the learning process. At the end of each lesson, evaluation activities were administered to assess understanding. After the treatment period, the reshuffled BSAT was re-administered to both groups to obtain posttest scores. Data collected were analyzed using Analysis of Covariance (ANCOVA) with the aid of the Statistical Package for Social Sciences (SPSS). All hypotheses were tested at the 0.05 level of significance.

Results

Research Question 1:

What is the difference between the pre-test and post-test mean achievement scores of students taught business studies using Lecture Teaching Method (LTM) and those taught using Computer Aided Instruction (CAI)?

Table 1: Mean Achievement Scores and Standard Deviation Scores of Students Taught Business Studies using Lecture Teaching Method and those taught using Computer Aided Instruction

Teaching Approach	Pre-test			Post-test			Mean Gain Score
	N	Mean	SD	N	Mean	SD	
Lecture Teaching Method	70	14.36	4.20	70	18.59	4.62	4.23
Computer Aided Instruction	60	13.53	3.53	60	20.18	5.40	6.65

The data in Table 1 shows the pretest and post-tests mean achievement scores of students taught business studies using lecture teaching method to be 14.36 and 18.59, while the mean gain score was 4.23. On the other hand, their counterpart taught using computer aided instruction had pre-test mean score of 13.53, post-test mean score of 20.18 and mean gain score of 6.65. Both the post-test mean score and mean gain score of students taught using computer aided instruction were greater than that of students taught using lecture teaching method. Hence, the differences between the pre-test and post-test mean achievement scores of students taught business studies using Lecture Teaching Method (LTM) and those taught using Computer Aided Instruction (CAI) is 2.42 in favour of those taught with CAI.

4.1.2 Research Question 2:

What is the difference between the pre-test and post-test mean achievement scores of male and female students taught business studies using Lecture Teaching Method (LTM) and that of those taught using Computer Aided Instruction (CAI)?

Table 2: Mean Achievement and Standard Deviation Scores of Male and Female Students Taught Business Studies Using Lecture Teaching Method and those taught using Computer Aided Instruction.

Teaching Approach	Gender	Pre-test			sPost-test			Mean Gain Score
		N	Mean	SD	N	Mean	SD	
LTM	Male	28	13.57	4.63	28	19.39	4.63	5.82
	Female	42	14.90	3.85	42	18.05	4.59	3.15
CAI	Male	22	12.41	2.53	22	19.77	3.80	7.3
	Female	38	14.18	3.88	38	20.42	6.18	6.18

As shown in Table 2, the pretest and post-tests mean achievement scores of male students taught business studies using LTM are 13.57 and 19.39 and those taught using CAI are 12.41 and 19.77 while the mean gain score is 5.82 and those taught using CAI is 7.36. The female counterpart, on the other hand had pretest mean score is 14.90, posttest mean score of 18.05 and those taught using CAI are 14.18 and 20.42 and mean gain score is 3.15 and those taught using CAI is 6.24. This shows that male students taught business studies using LTM and those using CAI had higher post-test mean achievement score and greater mean gain score than their female counterpart. Hence, the difference between the pre-test and post-test mean achievement scores of male and female students taught business studies using LTM is 2.67 and those taught using CAI is 1.12.

Hypothesis 1:

There is no significant difference between the mean achievement scores of students taught business studies using Lecture Teaching Method (LTM) and those taught using Computer Aided Instruction (CAI).

Table 4: Summary of Analysis of Covariance of Students' Mean Achievement Scores inBusiness Studies by Teaching Method

Source	*SS*	*df*	*MS*	*F*	*P*
Corrected Model	166.98	2	83.49		
Intercept	2534.7	1	2534.77		
Pretest	84.51	1	84.51	3.44	.06
Group	99.97	1	99.97	4.07	.04
Error	3113.45	127	24.51		
Total	51820.00	130			

Result in Table 4 represents the ANCOVA result for the test of the difference between the mean achievement scores of students taught business studies using Lecture Teaching Method (LTM) and those taught using Computer Aided Instruction (CAI). The results show that there is a statistically significant difference in mean achievement scores of students

taught business studies using LTM and those taught using CAI, F(1,127) = 4,07, *P*<0.05. The null hypothesis of no significant difference between the two groups was therefore rejected.

Hypothesis 2:

There is no significant difference in the mean achievement scores of male and female students taught business studies using LTM and those taught using CAI

Table 5: Summary of Analysis of Covariance of Students' Mean Achievement Scores in Business Studies by Gender

Source	*SS*	*df*	*MS*	*F*	*P*
Corrected Model	45.37	2	22.68		
Intercept	1582.25	1	1582.25		
Pretest	14.97	1	14.97	.70	.40
Gender	36.77	1	36.77	1.72	.19
Error	1429.60	67	21.33		
Total	25655.00	70			

Table 5 reports the ANCOVA results of the test of difference in the mean achievement scores of male and female students taught business studies using LTM. The Table shows that there is no statistically significant difference in the achievement scores of male and female students taught business studies using LTM, F (1,67) = 1.72, *P*>0.05. The null hypothesis of no significant difference between the two groups was therefore not rejected.

Table 6: Summary of Analysis of Covariance of Students' Mean Achievement Scores in Business Studies by Gender

Source	*SS*	*df*	*MS*	*F*	*P*
Corrected Model	125.62	2	62.81		
Intercept	777.37	1	777.37		
Pretest	119.76	1	119.76	4.27	.04
Gender	.10	1	.10	.00	.95
Error	1597.36	57	28.02		
Total	26165.00	60			

Result in Table 6 depicts the ANCOVA test for the difference in the mean achievement scores of male and female students taught business studies using CAI. The table shows that there is no statistically significant difference in mean achievement scores of male and female students taught business studies using CAI, F(1,57) = .00, *P*>0.05. The null hypothesis of no significant difference between the two groups was therefore not rejected.

Discussion of Findings

The findings of research question one revealed that male students taught Business Studies using the lecture teaching method (LTM) recorded slightly higher post-test mean achievement and mean gain scores than their female counterparts. However, the difference was not statistically significant. This suggests that gender did not significantly influence students' academic achievement when taught using the lecture method. This finding is consistent with Okafor and Samuel (2022) and Nwosu and Ndanwu (2020), who reported no significant gender difference in students' achievement when taught using conventional instructional methods. However, the finding contradicts Mihindo, Wachanga, and Anditi (2017), who found a significant difference in students' achievement based on instructional methods. The disparity may be attributed to differences in subject content and study context.

Results of research question two showed that male students taught Business Studies using computer-aided instruction (CAI) achieved higher post-test mean scores and mean gain scores than female students. Despite this difference, the result of the hypothesis test indicated that the difference was not statistically significant. This implies that CAI was effective for both male and female students. This finding agrees with Usman (2018), who reported no significant gender difference in students' performance when taught using computer-based instructional strategies. However, it disagrees with Owenvbiugie and Ebhomien (2021), who reported significant gender differences in favour of either male or female students. These variations may be due to differences in instructional design, sample characteristics, or subject areas. Overall, the findings indicate that while minor gender differences were observed in mean scores, gender did not significantly influence students' academic achievement in Business Studies when taught using either lecture method or computer-aided instruction. The superior performance of students exposed to CAI suggests that instructional method plays a more critical role in academic achievement than gender.

Conclusion

The study concluded that computer-aided instruction is more effective than the lecture teaching method in improving students' academic achievement in Business Studies in secondary schools in Anambra State. Although minor gender differences were observed, they were not statistically significant. Therefore, CAI enhances learning outcomes in Business Studies irrespective of gender, while the lecture method remains useful as a complementary teaching approach.

Recommendations

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

1. Business Studies teachers should adopt computer-aided instruction to enhance students' academic achievement.
2. Government and school authorities should provide adequate ICT facilities and instructional resources to support the use of CAI in schools.
3. Regular training should be organized for Business Studies teachers on the effective use of computer-aided and other student-centered instructional methods.

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