



## EFFECT OF JIGSAW INSTRUCTIONAL STRATEGY ON FINANCIAL ACCOUNTING STUDENTS' ACADEMIC ACHIEVEMENT IN COLLEGES OF EDUCATION IN SOUTH-WEST, NIGERIA

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### Abstract

This study examined the effect of jigsaw instructional strategy on Financial Accounting students' academic achievement in Colleges of Education in south-west Nigeria with consideration for gender sensitivity. To achieve the aim of the study, two research questions were raised and three hypotheses were formulated and guided the study. The study adopted a quasi-experimental design with a 2 x 2 factorial matrix. The population consisted of 2,232 NCE II Business Education students in all the public Colleges of Education in South-west, Nigeria. The sample size comprised 331 NCE II Business Education students from two Colleges of Education and the sample was selected using a simple random sampling technique in a multi-stage procedure. The Financial Accounting Achievement Test (FAAT) was the instrument validated and used for data collection. The reliability of FAAT was ensured using the KR-20 technique and it yielded a reliability coefficient of 0.92. The data collected were analyzed using the mean and standard deviation to answer research questions and Analysis of Covariance (ANCOVA) to test the hypotheses at 0.05 level of significance. The results showed that there is a significant main effect of treatments on students' achievement in Financial Accounting ( $p < 0.05$ ) because students taught Financial Accounting with the jigsaw strategy had higher academic achievement than those taught with the conventional lecture method. It was also found that there is no significant effect of gender on students' academic achievement in Financial Accounting ( $p > 0.05$ ). The study concluded that the jigsaw instructional strategy is more effective than the conventional lecture method because it helped to improve students' academic achievement in Financial Accounting. It was recommended among others, that business educators at the college level should employ a jigsaw instructional strategy for teaching Financial Accounting to enhance students' academic achievement in the subject.

**Keywords:** academic achievement, financial accounting, gender, jigsaw instructional strategy

### Introduction

Financial Accounting (FA) is one of the Business Education courses offered in Colleges of Education to expose students to the principles of book-keeping, accounting and financial management. The objective of teaching FA in Colleges of Education is to equip students with relevant skills, knowledge and the right attitude needed to teach business subjects at the secondary school level. It provides training to students in the practical knowledge of daily book-keeping activities and the steps involved in financial management so that, on graduation, they should be able to secure paid jobs or be self-employed. In addition, the role of Financial Accounting in the survival of an enterprise in today's competitive business environment cannot



be undermined. This is because the knowledge of Financial Accounting is very useful in performing financial management duties of a business outfit, as an employee and for successful management of financial records of self-business as an entrepreneur, thus, enabling them to contribute their quota to the economic growth and development of the country.

The actualization of the objectives of Financial Accounting depends on the quality of instruction offered by the teachers and how students can grasp the principles and concepts of the subject as reflected in their academic achievement during their course of study. Therefore, students' academic achievements in Financial Accounting go a long way in accomplishing its objectives. Academic achievement is the outcome of learning in school, that is the extent to which teachers achieve their learning or instructional goals. It is the degree of success attained by students' academic activities after being exposed to classroom learning (Jimoh, Abanyam & Uloko, 2021). In a school setting, students' academic achievement is commonly measured using classroom exercises, assignments, continuous assessments as well as internal and external examinations. It can be used to indicate the students' level of success in a particular task previously exposed to or as an indicator of students' capacity to complete a different task.

Regrettably, the academic achievement of students enrolled in the Nigerian Certificate in Education (NCE) programme, specifically in Financial Accounting, within the South-West region of Nigeria, is currently unsatisfactory and equally worrisome which may impede the successful attainment of the programme's intended goals. According to Agboh (2015), the primary goals of Financial Accounting are defeated as a result of the continuous poor academic achievement and declining interest of students. For instance, students' results in Financial Accounting made available by the Heads of Department of three Colleges of Education indicated that a significant proportion of students who took part in the Financial Accounting examination over five years before this study exhibited a performance level that was below the average (50%). The summary of students' results from some Colleges of Education revealed that those who obtained credit grades and above were below average. This is an indication that learners in Colleges of Education may be facing challenges in the learning of Financial Accounting concepts and principles. This continuous poor achievement of students in Financial Accounting may worsen Business Education students' employability status, hence contributing to the increasing unemployment rate among youths in the country.

the poor learning outcomes of Financial Accounting students are an indication that the conventional lecture method mostly used by business educators may not be suitable for instruction. Attesting to this fact, Uduafemhe (2015) emphasizes that students' failure in school subjects is attributed to the continuous use of unsuitable instructional methodologies (mostly the conventional lecture method) by teachers in teaching their students. Also, Adamu, Umar and Adamu (2022) expressed that the major reason behind the poor performance of students in Financial Accounting is the use of teacher-oriented lecture methods. Conventional lecture method is an instructional strategy which allows the teacher to present a wide content to a large class of students within a short time. The conventional lecture method is profitable in the verbal dissemination of learning contents that need to be covered within a short period in a large class



size (Eziyi, Mumuni & Nwanekezi, 2016; Salisu& Samuel, 2022). When this method is used, the teacher does most of the talking and the students become passive listeners, and learn by note-taking and memorization of facts which may make learning ineffective and thereby lead to poor academic achievement. Meanwhile, Financial Accounting by its nature majorly involves the calculation of monetary values of an organization to reveal profit from an operation and show its financial position which makes it a practical and tasking subject.

The use of conventional lecture method may not be appropriate for teaching calculation subject like Financial Accounting. Nnorom (2015) corroborates this assertion that the lecture method is a strategy that leads not only to low achievement but also incapacitates students from developing the required skills necessary for creative thinking. Meanwhile, there is a need for accounting education lecturers to employ innovative and learner-centred strategies that will facilitate the successful instruction and comprehension of Financial Accounting concepts and principles. Researchers have suggested that teaching strategies that support and allow learners to construct their meaning and understanding, reason and develop self-confidence to overcome academic challenges should be used. Among these strategies are scaffolding, blended and jigsaw instructional strategies. This study considered the jigsaw instructional strategy due to its little applicability to Financial Accounting instruction especially in South-West, Nigeria.

The jigsaw model is a cooperative learning strategy that enables teachers to build students' expertise in a subject matter and allow them to learn through their activities at home and in expert groups. Sani et al. (2022) opine that the Jigsaw model of cooperative learning allows students to be introduced to materials and yet maintain a high level of personal responsibility to develop teamwork and cooperative learning skills. In implementing the jigsaw model, students are to be allowed to learn through their activities within small groups whereby each member specializes in a specific portion of a particular subject and shares the acquired knowledge with other members of his home group (Salisu& Samuel, 2022). The members of each group study the same subject, but each member specializes in a specific part of the subject. Consequently, members of different groups assigned the same part; hold a discussion meeting as an expert group and thereafter, join their home/original group to explain to other members what was learned from the expert group.

It is reported that the jigsaw model is the most flexible and effective among the most frequently used and researched cooperative learning strategies (Ozdemir & Arslan, 2016). Similarly, the strategy that is recommended most for social and science studies is the series of Jigsaw (Phuntsho & Gyelthen, 2022). The reason is that it enhances the interaction, completion, cooperation and individual research in the classroom and also exposes students to how to teach others. However, there is a contention that the objective of education should be to foster an increased awareness among learners regarding their learning processes, to engage in thoughtful consideration of ideas, and to derive personal patterns of thought as well as interpretation from experiences in the classroom. Hence, it is imperative to ascertain the efficacy of the jigsaw model in the pedagogy of Financial Accounting at the Colleges of Education level.



Apart from teaching strategy, gender has also been identified as one of the factors influencing students' academic achievement at all levels of education (Gambari et al., 2016). Gender is the range of physical and biological characteristics pertaining to and differentiating the feminine from the masculine (Adigun et al., 2015). Differences in students' academic achievement based on gender have been of great concern to scholars/researchers just as many studies indicate that gender plays a significant role in the achievement differences among students. For instance, some studies found that gender has a significant influence on academic achievement in school subjects stating that male students perform better than females in school subjects (Githae et al., 2015). Contrary to this viewpoint, certain studies have reported a notable impact of gender on student achievement in favour of females (Olarinoye, 2015). Other studies have found no statistically significant disparity in academic performance between males and females (Adeyemi & Awolere, 2016; Gambari et al., 2016; Timayi, 2016; Nnorom, 2015; Gabi, 2015). Considering the diverse reports of gender imbalances in the learning outcomes and the potential implications of gender in employing a jigsaw instructional strategy for teaching Financial Accounting; it is imperative to investigate whether there is a moderating effect of gender on students' academic achievement in Financial Accounting.

Meanwhile, several research studies have been conducted on the effect of jigsaw instructional strategy on students' academic achievement in school. Most of these studies were carried out in secondary schools (Aditi, 2017; Timayi, 2016; Eziyi et al., 2016; Gul, 2016; Omiko, 2015; Uduafemhe, 2015; Alake & Ogunseemi, 2013; Zakaria et al., 2013) while those conducted in Colleges of Education focused on subjects other than Financial Accounting (Al- Salkhi, 2015; Mari & Gumel, 2015; Marhamah & Mulyadi, 2013). Little has been done to determine the effectiveness jigsaw instructional strategy in the teaching Financial Accounting. Therefore, this study was conducted to determine the effect of a jigsaw instructional strategy on Financial Accounting students' academic achievement in Colleges of Education in South-West, Nigeria.

### **Research Questions**

The following research questions were raised and answered in this study:

1. What is the difference between the mean achievement scores of students taught Financial Accounting using the jigsaw strategy and those taught using the conventional lecture method?
2. What is the difference between the academic achievement scores of male and female students taught Financial Accounting using treatment strategies?

### **Hypotheses**

The following null hypotheses were formulated to guide the study and tested at 0.05 level of significance:

- Ho<sub>1</sub> There is no significant main effect of treatment on students' achievement scores in Financial Accounting in Colleges of Education in South-West, Nigeria
- Ho<sub>2</sub> There is no significant effect of gender on student's academic achievement scores in Financial Accounting in Colleges of Education in South-West, Nigeria



Ho<sub>3</sub> There is no significant interaction effect of treatment and gender on the mean achievement scores of students in Financial Accounting.

### Methodology

The study adopted a quasi-experimental design with a 3 x 2 factorial matrix, which comprises three treatment groups and gender at two levels. The population consisted of 2,232 NCE II Business Education students in all the public Colleges of Education in South-west, Nigeria. The sample size comprised 331 NCE II Business Education students from two Colleges of Education and the sample was selected using a simple random sampling technique in a multi-stage procedure (1-two states selected randomly; 2- one college selected from each of the two states randomly; 3-the two colleges assigned to experimental and control group randomly). For treatment intervention, a week prior to the commencement of the treatment, a pre-experimental briefing section was organized to brief the research assistants on the procedure for the experiment in each of the two groups; after which the pre-test was administered. The actual treatments (which lasted for five weeks) commenced in the respective schools in the second week where NCE II accounting students in AOCOED were taught Financial Accounting using a jigsaw instructional strategy while NCE II accounting students in ACE were taught Financial Accounting using conventional lecture method. A week after the treatments, the post-test was administered to students in both experimental and control groups. Data on academic achievement were collected using a validated Financial Accounting Achievement Test (FAAT). The reliability of FAAT was ensured using the KR-20 technique and it yielded a reliability coefficient of 0.92. The data collected were analyzed using the mean and standard deviation to answer the research questions and Analysis of Covariance (ANCOVA) to test all the hypotheses at 0.05 level of significance.

### Results

**Research Question One:** What is the difference between the mean achievement scores of students taught Financial Accounting using the Jigsaw Strategy and those taught using the Conventional Lecture Method?

**Table 1:** Mean Academic Achievement Score and Standard Deviation of students taught Financial Accounting with Jigsaw Strategy and Conventional Lecture Method

Treatment Strategies	N	Pretest		Posttest		Mean Gain	Diff.
		Mean	Std. Dev	Mean	Std. Dev		
Jigsaw Instructional Strategy	235	10.30	1.69	34.03	1.13	23.73	21.72
Conventional Lecture Method	96	9.68	1.44	11.69	1.49	2.01	

Results in Table 1 show a pretest mean achievement score of 10.30 and a posttest mean achievement score of 34.03 for students taught Financial Accounting with Jigsaw Strategy. The result also, shows a pretest mean achievement score of 9.68 and a posttest mean achievement



score of 11.69 for students taught Financial Accounting with the conventional lecture method. A comparison shows a mean gain of 23.73 for experimental group one and 2.01 for the control group with a difference of 21.72 in favour of students in experimental group one. This result indicates that students taught Financial Accounting with a jigsaw strategy performed better than those taught with conventional lecture method.

**Research Question Two:** what is the difference between the mean academic achievement scores of male and female students taught Financial Accounting using treatment strategies?

**Table 2:** Mean Academic Achievement Score and Standard Deviation of Male and Female Students taught Financial Accounting with Jigsaw Strategy and Conventional Lecture Method

Treatment Strategies	Gender	N	Pretest		Posttest		Mean Gain
			Mean	Std. Dev	Mean	Std. Dev	
Jigsaw Strategy	Male	149	10.37	1.75	34.07	1.08	23.70
	Female	86	10.20	1.62	33.96	1.20	23.76
Conventional Lecture Method	Male	57	9.72	1.47	11.75	1.53	2.03
	Female	39	9.62	1.41	11.59	1.43	1.97

The result in Table 2 shows a mean gain of 23.70 for male students and 23.76 for female students taught using the jigsaw instructional strategy. The result also shows a mean gain of 2.03 for male and 1.97 for female students taught using the conventional lecture method. This result shows that the academic achievement of females taught Financial Accounting using a jigsaw instructional strategy is slightly better than their male counterparts while males slightly perform better than females in the conventional method group.

### Hypothesis Testing

**Hypotheses One:** There is no significant main effect of treatments on students' achievement in Financial Accounting in Colleges of Education in South-West, Nigeria

**Table 3:** ANCOVA Result Showing the Main Effect of Treatments on Students' Academic Achievement in Financial Accounting

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	34023.840 <sup>a</sup>	4	8505.960	5479.181	.000
Intercept	4371.645	1	4371.645	2816.029	.000
Pretest	.134	1	.134	.087	.769
Treatments	31543.439	1	31543.439	20318.953	.000
Gender	1.125	1	1.125	.724	.395
Treatments * Gender	.065	1	.065	.042	.837
Error	506.087	326	1.552		
Total	285757.000	331			
Corrected Total	34529.927	330			

The result in Table 3 showed an F-value of 20318.953 and a p-value (computed significant value) of 0.00. Since the computed significance (P-value) is less than the Alpha level of significance ( $p = 0.00 < 0.05$ ), the null hypothesis is hereby rejected. This result indicates that there is a significant main effect of treatments on students' achievement scores in Financial





Accounting in Colleges of Education in South-West, Nigeria. This indicates that there is a significant effect of treatment on financial accounting students' academic achievement in colleges of education because those taught with jigsaw had higher academic achievement than those taught with the conventional method.

**Hypotheses Two:** There is no significant effect of gender on student's academic achievement scores in Financial Accounting in Colleges of Education in South-West, Nigeria.

The result in Table 3 on gender effect, showed an F-value of 0.72 and a p-value (computed significant value) of 0.39 which revealed that the computed significant (p-value) is greater than the Alpha level of significant ( $p = 0.39 > 0.05$ ). Therefore, the null hypothesis of no significant effect is hereby accepted. This result indicates that there is no significant effect of gender on students' academic achievement scores in Financial Accounting in Colleges of Education in South-West, Nigeria.

**Hypotheses Three:** There is no significant interaction effect of treatment and gender on student's academic achievement in Financial Accounting in Colleges of Education in South-West, Nigeria

The result in Table 3 on the interaction effect of treatment and gender showed an F-value of 0.042 and a p-value (computed significant value) of 0.837 which revealed that the computed significance (p-value) is greater than the Alpha level of significance ( $p = 0.837 > 0.05$ ). Therefore, the null hypothesis of no significant interaction effect is hereby accepted. This result indicates that there is no significant interaction effect of treatment and gender on students' academic achievement scores in Financial Accounting in Colleges of Education in South-West, Nigeria.

### Discussion of Findings

The findings of the study showed that students taught Financial Accounting had higher mean scores than their counterparts taught with the conventional method. This increase in students' academic achievement might be because jigsaw strategy enhances the interaction, collaboration, and cooperation among students, it ensures full participation of all students in the learning process and encourages individual research in the classroom. This increase in students' academic achievement of students may be connected to the fact that the jigsaw strategy emphasizes cooperative learning by providing students with an opportunity to actively help each other build skills; students are to learn course materials together by sharing knowledge and yet maintain a high level of personal responsibility to develop teamwork and cooperative learning skills among themselves. The level of comprehension of students will be enhanced due to the fact they are assigned expertise in aspects of Financial Accounting and are being built by the teacher through various activities at home and expert groups. This finding aligns with the findings of (Aluko & Olorundare, 2016; Sani, Ibrahim & Bala, 2022; Mohammed & Samuel, 2022; Fasasi & Istifanus, 2022; Johnson & Lawal, 2022; Phuntsho & Gyeltshen, 2022) in their separate studies that the Jigsaw strategy is effective because it enhancing or improve students' achievement subjects like biology, mathematics social studies than the conventional lecture method. It is therefore



established that the Jigsaw strategy is more effective in Financial Accounting instruction and in improving students' achievement than the Conventional Lecture Method.

Further findings of the study revealed that female students in the jigsaw instructional strategy group slightly perform better than their male counterparts. This finding is in agreement with the report of Obialor and Chukwuagu (2020), Amobi and Uche (2022) and George et al (2021) who found in their separate studies that female students taught in the experimental group had higher mean achievement scores than their male counterparts. It is in converse with the findings of Umuoike and Nwafor (2014), Enebechi, (2016) and Omiko (2015) that male students achieved better than female students when taught with instructional scaffolding. This finding is not also consistent with the position of Torpev et al. (2022), Akinjide (2018) and Omwirhiren and Ibrahim (2016) found that there is no difference in the mean achievement of males and females exposed to teaching with instructional scaffolding while Mohammed and Samuel (2022) as well as Fasasi and Istifanus (2022) found that there is no difference in the mean achievement scores of male and female students taught using jigsaw II learning strategy

The finding of the study also showed that there is a significant main effect of treatments (with a jigsaw instructional strategy) on students' achievement scores in Financial Accounting. This indicates that the use of the jigsaw strategy is more effective in enhancing students' achievement in financial accounting than the conventional method. This better academic achievement could be because jigsaw strategy enhances the interaction, collaboration, and cooperation among students, it ensures full participation of all students in the learning process and encourages individual research in the classroom. This finding agrees with the report of Joda et al. (2019); Boris (2020); Amobi and Uche (2022); Sanni et al. (2022) as well as that of Fasasi and Istifanus (2022) that treatment strategy significantly enhances students' academic achievement than the use conventional lecture method. On the other hand, the findings of Hussein and Neamah (2020) and Mohammed and Samuel (2022) that there are statistically significant differences between the academic achievement of students taught using the Jigsaw Strategy and those taught with conventional lecture method.

The results of the study revealed that there is no significant effect of gender on students' academic achievement scores in Financial Accounting in Colleges of Education in South-West, Nigeria. This result shows that the use of Jigsaw and Instructional Scaffolding strategies for Financial Accounting instruction is not gender sensitive and biased. This result might be due to the fact that the use of Jigsaw as one of the cooperative learning strategies gives equal opportunity for all group members to learn and share knowledge through activities in the home and expert group. Students' better performance in jigsaw group may be connected to the fact that the jigsaw strategy emphasizes cooperative learning by providing students an opportunity to actively help each other build skills; students are to learn course materials together by sharing knowledge and yet maintain a high level of personal responsibility to develop teamwork and cooperative learning skills among themselves. This finding is in agreement with the report of Amodi and Uche (2021) that gender was not a significant factor in students' achievement although female students achieved higher than males. Also, Durojaiye (2015) reported that





gender did not contribute significantly to varying students' achievement scores in Financial Accounting. On the contrary, Umuoke and Nwafor (2014) found that male students achieve better than female students. Also, Olorode and Jimoh (2016) revealed in a study that a significant difference exists between the academic achievement of male and female students, taught Financial Accounting using a guided discovery learning strategy.

The finding of the study revealed that there is no significant interaction effect of treatments and gender on students' academic achievement in Financial Accounting in Colleges of Education in South-West, Nigeria. This result shows that a change in academic achievement of students in Financial Accounting as a result of treatment is not dependent on gender. Therefore, the effect of the treatments on achievement in Financial Accounting does not vary with gender. This finding is in line with the report of Owenvbiugie and Iyoha (2017) that the scaffolding method is a good teaching method for enhancing students' achievement in Financial Accounting irrespective of gender which according to Agboh (2015) means that gender of the students had no significant interaction effects with the treatment given to them. Similarly, Nnorom (2015) reported that there was no significant interaction effect of treatment and gender on students' achievement in Biology. Also, Eze et al. (2016) reported that there was no interaction effect of treatments and gender on students' academic achievement in Financial Accounting.

### **Conclusion**

The study concluded from the results that the use of a jigsaw instructional strategy in teaching Financial Accounting is more effective and better than the conventional method in enhancing students' academic achievement. This is because the Jigsaw strategy enables interaction, participation and collaboration among students as well as encourages individual and group research which assists students in developing the necessary skills needed for creative thinking. It was also concluded that the use of the jigsaw instructional strategy is not gender bias because there was no significant effect of gender on students' achievement in Financial Accounting.

### **Recommendations**

The following recommendations were presented based on the findings of the study:

1. Business educators at Colleges of Education level should employ the use of Jigsaw strategy for teaching Financial Accounting to enhance students' academic achievement in Business Education.
2. Lecturers should ensure proper monitoring of students when using the jigsaw strategy, especially during various activities and discussions at home and in expert groups so that optimal results of this strategy will be achieved.
3. The government through NCCE should include a jigsaw instructional strategy in the list of suggested methods for teaching Financial Accounting in the curriculum of Colleges of Education in Nigeria.
4. Administrators of Business education departments in Colleges of Education should organize seminars and workshops for educators on the procedure and benefits of jigsaw instructional strategies in Financial Accounting.



5. Further studies should be conducted to determine the effect of the Jigsaw instructional strategy on secondary school students' achievement and retention in financial accounting.

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