

Effects of Instructional Scaffolding on the Achievement of Male and Female Students in Financial Accounting in Secondary Schools in Abakaliki Urban of Ebonyi State, Nigeria

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Abstract: This study was carried out to investigate the effects of instructional scaffolding on the achievement of male and female students in financial accounting in Abakaliki Urban of Ebonyi State, Nigeria. A pretest, posttest, control group, non randomized quasi experimental design was used in this study. The population of the study comprised all SS II students in all the secondary schools in Abakaliki Urban offering financial accounting. Four secondary schools were selected out of the fourteen secondary schools in Abakaliki offering financial accounting. Two schools were assigned to the treatment group while the other two were assigned to the control group. A total of one hundred and sixty-three (163) students offering financial accounting were used for the study. Two instructional packages were developed, one for the treatment group and the other was subjected to the conventional method of teaching financial accounting. The financial accounting achievement test was used for data collection. The data were analyzed using mean and standard deviation while the analysis of co-variance was used to test the hypothesis. Summary of result revealed that instructional scaffolding method was superior to the conventional method in improving the achievement of male and female students in financial accounting. The test of interaction showed that gender had no significant interaction with teaching approach on students mean achievement. It was concluded that instructional scaffolding is a good teaching method for teaching financial accounting and the researcher recommended that financial accounting lessons should be scaffolded irrespective of the gender of the students.

Key words: Accounting, achievement, effects, financial, instructional, scaffolding

INTRODUCTION

Instructional scaffolding is a teaching strategy that emphasizes the teaching of new skills by engaging students collaboratively in tasks that would be too difficult for them to complete on their own. The teaching strategy emphasizes on the role of teachers and others in supporting the learner development and providing support structures to get to that next stage or level (Raymond, 2000) This teaching strategy originated from Lev Vygotsky socio-cultural theory and his concept of the Zone of Proximal Development (ZPD) (Raymond, 2000). His socio cultural theory spelt out that social interaction plays an important role in the development of cognition. He believes that learning occurs through participation in social or culturally embedded experiences. In his view, the learner does not learn in isolation, rather learning is strongly influenced by social interactions, which take place in meaningful contexts. Children social interaction with more knowledgeable or capable people and their environment significantly affect their ways of thinking and interpreting situations. The second foundation for instructional

scaffolding is Vygotsky concept of the Zone of Proximal Development (ZPD). The ZPD is that area between what a learner can do independently (mastery level) and what can be accomplished with the assistance of a competent adult or peer (instructional level). He believes that any child could be taught any subject effectively using instructional scaffolding techniques by applying the scaffolds at the ZPD.

Instructional scaffolding as a teaching strategy depends heavily on the idea that children come to any educational setting with a great deal of pre-existing knowledge, some of which may be naive or incorrect. It is the process of building on what a student already knows that makes scaffolding an effective instructional technique. Olson and Prath (2000) observed that in instructional scaffolding, a more knowledgeable other provides scaffolds to facilitate the learner development. The scaffolds facilitate a student ability to build on prior knowledge and internalize new information. The activities provided in scaffolding instruction are just beyond the level of what the learner can do alone. An important aspect of scaffolding is that the scaffolds are temporary. As the learners abilities increase the scaffolding provided

by the more knowledgeable person is progressively withdrawn. Finally, the learner is able to complete the task or master the concepts independently (Chang *et al.*, 2002).

Financial accounting is the process of collecting, recording, presenting and analyzing/interpreting financial information for the users of financial statements (Igberi, 1999). Financial accounting involves the collection, recording, summarizing, analysing and reporting in monetary terms information about a business organization to the users of such information. Financial accounting is one of the subjects offered in the senior secondary schools in Nigeria. It is among the subjects taken in West African Senior School Certificate Examination and National Examination Council School Certificate Examinations. This subject should equip the recipients with the competency needed to keep basic accounting records.

Many students register this subject in secondary schools but unfortunately they perform poorly in external examinations irrespective of their gender. Statistics of entries and performance of students by grades for the May/June 2002 West African School Certificate Result (WASSCE) on gender basis in Nigeria shows that out of 93,694 males that registered for financial accounting only 27,590 representing a percentage of 29.44% passed at credit and above while out of 108,357 females that registered for the subject, only 31,106 representing a percentage of 28.70% passed at credit and above. In the year 2005, out of 45,816 males that took financial accounting, only 19,299 representing 20.42% of the males made a credit level and above while out of 48,688 females that sat for the examination, only 20,497 representing a percentage of 21.69% made a credit and above.

The poor performance of students in financial accounting is evident in the overall results of students in such examinations as the General Certificate in Education (G.C.E); Senior Secondary School Certificate Examinations S.S.C.E and National Business and Technical Examination Board (NABTEB) (Ekwue, 1993). The traditional methods of teaching financial accounting such as the discussion method, demonstration method, Socratic method and project methods have been used but failed to impact the necessary knowledge and skills comprehensively. Okon (2002) equally believes that these traditional methods are not challenging enough to the needs of the students. Considering the fact that financial accounting is a numerate subject which is gender sensitive. It will be fascinating to ascertain the impact of instructional scaffolding on the achievement of male and female students in financial accounting.

Statement of problem: The increasing level of poor performance of students in financial accounting calls for

a need to ascertain a teaching method that will improve the achievement of students in financial accounting irrespective of the gender of the students. The poor performance of students could be as a result of poor method of teaching financial accounting. Many teaching methods and approaches have been introduced but could not improve the achievement of male and female students in financial accounting.

Scaffolding is believed to be an effective teaching technique provided it is executed effectively. Hartman (2002) observed that research and theory suggest that the educational outcomes of scaffolding can be positive, particularly when the instructor is well prepared and aware of the theoretical basis for the technique irrespective of the gender of the students. However, Ikeche (2004) presented an argument that achievement in financial accounting is gender sensitive because female students are always afraid of calculating figures. Although his argument is logical, it is not backed up by real empirical evidence. Hence the exact effect of scaffolding on achievement of male and female students is yet to be determined.

Purpose of study: The major purpose of the study was to ascertain the effect of instructional scaffolding on the achievement of male and female students in financial accounting.

Specifically, the study sought to:

- Determine the effect of instructional scaffolding on the mean achievement of male and female students in financial accounting.
- Explore the interaction effect of instructional approach and gender on students mean achievement in financial accounting.

Research questions:

The study was guided by the following research questions:

- What is the effect of Instructional Scaffolding on the mean achievement of male and female students in financial accounting?
- What is the interaction effect of instructional approach and gender on students mean achievement in financial accounting?

Hypotheses: The following null hypotheses which were tested at an alpha level of 0.05 guided the study:

- There is no significant difference in the mean achievement score of male and female students taught financial accounting using Instructional Scaffolding method.
- The interaction effect of gender and instructional approach on students mean achievement in financial accounting will not be significant.

METHODOLOGY

The study used pre-test, post-test, control group, non-randomized quasi experimental research design. The experimental and control groups were used and there was no randomization of subjects hence intact classes were used. The population of the study comprised all SS11 students in fourteen (14) secondary schools offering financial accounting within the three local government areas in Abakaliki Urban. Four secondary schools made up of two co-educational schools, one boys school and one girls school were sampled out of the entire population. Out of the four schools sampled two of them were assigned to the treatment group while the other two were assigned to the control group. The instrument for data collection was a Financial Accounting Achievement Test (FAAT) which was made up of questions from SS 11 module on financial accounting. The questions covered both lower order and higher order questions. The topics covered in the test batteries were: depreciation account, control account, manufacturing account and partnership account. The items of the instrument were designed to be a mixture of free response and restricted response questions.

The experimental procedure was carried out as thus: Two instructional packages were developed by the researcher. The first package was based on Instructional Scaffolding method while the second package was based on traditional method. The questions were drawn from the same curriculum. At the beginning of the experiment, the subjects in both treatment and control groups were given the pre-test. After the pre-test the regular financial accounting teachers began the experiment in their respective schools ensuring that they follow the lesson procedure developed from the instructional package during the pre-experimental training. The treatment groups were taught using the instructional package for the experimental group while the control groups were taught using the instructional package for the control group. This experiment lasted for eight weeks and it was conducted during the normal school periods according to the school time table. The post test was administered to the subjects in the two groups at the end of the experiment.

The data was collected using this procedure: At the beginning of the experiment, the FAAT was administered to both treatment and control groups as pre-test. This was performed by the subject teachers. At the end of the text the question papers and answer scripts were collected from the students. The same instrument was administered to the students at the end of the experimental period, which is six weeks. These served as post-test. The scores obtained from the pre-test and post-test were subjected to analysis using both inferential and descriptive statistics. The collected data was analyzed. Mean and standard deviation were used to answer the research questions

Table 1: Mean Achievement scores of male and female students taught financial accounting using instructional scaffolding

Group	N	Mean	Standard Deviation
Male	19	48.05	8.59
Female	64	52.67	11.04

Table 2: Interaction effect of gender and instructional approach on mean achievement of students in financial accounting

Group	Male	Female
Instructional scaffolding	48.05	63.56
Conventional method	32.22	40.23

while the analysis of co-variance (ANCOVA) was used to test the hypotheses at an alpha level of 0.05.

RESULTS

What is the effect of Instructional Scaffolding on the mean achievement of male and female students in financial accounting? The results of the data analysis shown in Table 1 indicate that instructional scaffolding approach does not have much differential effect on the male and female students. Male students had a mean of 48.05 and a standard deviation of 8.59 while female students had a mean of 52.67 and a standard deviation of 11.04.

What is the interaction effect of instructional approach and gender on students mean achievement in financial accounting? The mean score for the male and female students taught using instructional scaffolding and those taught using conventional method were used to assess their interaction. The summary of the analysis is shown in Table 2.

The analysis of the result as shown in Table 2 shows no interaction effect between instructional approach and gender since both the mean achievement score of male and female students are higher for instructional scaffolding.

There is no significant difference in the mean achievement scores of male and female students taught financial accounting using instructional scaffolding method.

The result of the test of hypothesis shows that f-cal (0.408) is less than the f-critical value (3.86) at an alpha level of 0.05 (Table 3). The researcher then upholds the null hypothesis since the calculated value is less than the critical value, hence there is no significant difference in the mean achievement scores of male and female students taught financial accounting using instructional scaffolding approach.

The interaction effect of gender and instructional approach on students mean achievement in financial accounting will not be significant.

On the test of hypothesis on the interaction effect between gender and instructional approach on students mean achievement in financial accounting, the summary

Table 3: Analysis of co-variance for students achievements in financial accounting based on gender

Sources of variation	SS	df	MS	F-value	F _v
Covariates	6600.464	1	6600.464	219.778	
Gender	12.265	1	12.265	0.408	3.86
Explained	6913.070	2	3456.535	115.094	
Residual	2402.593	80	30.032		
Total	9315.663	82	113.606		

SS: Sum of Square; MS: Mean Square

Table 4: Analysis of co-variance for students achievement in financial accounting based on teaching methods and gender

Sources of Variation	SS	df	MS	F-value	f _{cv}
Covariates	21214.545	1	21214.545	935.641	
Main Effects	10702.582	2	5351.291	236.012	
Methods	8383.063	1	8383.063	369.725	3.86
2 way interaction					
Method X gender	23.665	1	23.665	1.044	3.86
Explained	34585.379	4	8646.345	381.336	
Residual	3582.462	158	22.674		
Total	38167.840	162	235.604		

SS: Sum of Square; MS: Mean Square

of results in Table 4 shows that f-calculated value is (1.044) is less than the f-critical value 3.86 at an alpha level of 0.05. Owing to the findings the researcher upholds the null hypothesis and concludes that the interaction effect of gender and instructional approach on students mean achievement in financial accounting is not statistically significant.

DISCUSSION

The result of data analysis indicates that instructional scaffolding approach does not show much difference in the mean achievement scores of male and female students in financial accounting. The summary of the test of significance of difference in the mean achievement scores of male and female students taught financial accounting using instructional scaffolding reveals that the calculated value is less than the critical value and concludes that there is no significant difference in the mean achievement scores of male and female students taught financial accounting using instructional scaffolding.

This finding disagrees with the view of Abubule (1991) who observed that male students perform better than female students in financial accounting because the subject involves calculation of figures and female students are always afraid of mathematics. The findings of this study equally deviated from the views of William (1993) who pointed out that female students in secondary schools perform better in subjects like biology as opposed to mathematical subjects like accounting. The finding support the view of Cazden (1988) who stressed that for instructional scaffolding to be most effective, teachers need to balance levels of intellectual challenge and instructional support irrespective of the gender and ability of the students.

On the issue of interaction effect of Gender and Instructional Approach on students achievement in financial accounting, the result of the data analysis on test

of interaction shows no interaction between instructional approach and gender on students mean achievement in financial accounting. The mean achievement scores are higher for instructional scaffolding approach at all levels of gender. In the test of significance the calculated f-values are less than the critical values on the students mean achievement in financial accounting as shown in the table. Both male and female students performed well having been exposed to treatment effect under the same condition. This means that both male and female students benefited equally from the instructional approach. The treatment afforded them the opportunity of solving problems on their own with little assistance from their teacher. This is in line with the view of Olson and Prath (2000) who observed that instructional scaffolding helps to achieve the goal of any educator, which is to help students develop skills that will make them self directed and self regulated learners. It also allows them to reach levels of mastery that might be impossible for them to achieve without it.

CONCLUSION

Based on the findings the researcher concluded that the use of instructional scaffolding in teaching of financial accounting enhances the learning and understanding of financial accounting topics irrespective of the gender of the students. This led to the significant difference in the mean scores of male and female students taught using instructional scaffolding approach than those taught with conventional method.

RECOMMENDATION

Financial accounting lessons should be scaffolded irrespective of the gender of the students. Curriculum planners should adopt instructional scaffolding as an adequate teaching method for teaching financial

accounting. There should be organized workshops, seminar, and symposiums for teachers on the importance of using instructional scaffolding approach in teaching financial accounting.

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