The International Scholar Journal of Arts and Social Science Research, Vol. 7 No 1. 2024, https://www.theinterscholar.org/journals/index.php/isjassr, Pp. 532-541
Email: editorialoffice@theinterscholar.org

ISSN: 2705-1528

Effect of flipped classroom technique on senior secondary school students' interest in financial accounting in Anambra State

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Abstract

The poor performance of students in financial accounting in senior secondary schools necessitated this study to determine the effect of flipped classroom technique on students' interest in financial accounting in Anambra State. Two research questions were raised and three null hypotheses were tested at 0.05 level of significance. The study adopted quasi-experimental non-equivalent control group design. The population of this study comprise all the 1,876 SS II financial accounting students from six education zones in the 257 public secondary schools in Anambra State. Findings revealed that flipped classroom technique has a higher effect on students' interest scores in financial accounting than the lecture method and the difference was significant. Flipped classroom technique was more effective in enhancing the interest of male students in financial accounting than female students and the difference was not significant. The study concludes that flipped classroom technique is not only gender-friendly but also an active instructional approach that positively enhances the interest of students in financial accounting. It is recommended among others that management of secondary schools should subject financial accounting teachers to capacity building programmes through workshop, seminar and symposium on flipped classroom technique to enable them learn the rudiments of how to use the technique for teaching financial accounting.

Keywords: Effect of flipped classroom, technique, senior secondary school students' , Interest, Financial Accounting, 9-3-4 system

Introduction

The 9-3-4 system of education in Nigeria stipulates that students are expected to spend the first nine years of basic and compulsory education up to the Junior Secondary School (JSS III) level. Three years in the senior secondary school and four years in tertiary institution. The senior secondary school is a three-year educational system which students experience after junior secondary school before proceeding to the tertiary institutions for professional studies. At the senior secondary school level, students are taught business subjects such as economics, financial accounting, commerce as well as 34 trade or entrepreneurship subjects such as insurance, stenography, data processing, marketing, and salesmanship among others, of which senior secondary school students must study at least one of them before graduation (Federal Republic of Nigeria, 2013). The need to prepare

students for the dynamic accounting workplace necessitated the introduction of financial accounting into Nigerian senior secondary schools' curriculum.

Financial accounting is the recording, analysis, summarisation, interpretation and communication of financial information to help interested stakeholders make rational decisions. The importance of financial accounting is enormous because it is used for collecting and analyzing financial data, preparation of accounting statements and communicating financial information to employers. Correspondingly, Abbey and Okorogba (2017) submitted that the objective of studying financial accounting at the senior secondary school level includes the enabling senior secondary school students to appreciate the basic rules, functions and principles of accounting. At the secondary school level, financial accounting provides students with rich learning experiences that will assist them to learn the rudiments of accounting practices. At that level of education, students are equipped with elementary knowledge and skills to understand the business operations and practices of the corporate world. Objectively, Akamigho and Eneja (2020) submitted that financial accounting prepares students for employment in a wide range of business careers such as payroll clerk, bookkeeper and cashier among others. The teaching of financial accounting in senior secondary schools will help Nigerian students to be prudent with their income and expenditure in their commercial engagements in the society.

One of the predominant methods of teaching financial accounting in senior secondary schools is the lecture method. According to Enwere and Enwere (2014), the lecture method is teacher-centred with the teacher acting as repertoire of knowledge while the students are passive listeners or dormant recipients of the lessons. The lecture method has the advantages of being less tasking, allows for a wide coverage of content within a short time and it is suitable for teaching large number of students at the same time (Grange, 2015). However, the lecture method does not allow teachers to interact sufficiently with their students or allow students to interact among themselves (Achuonye, 2015), and this makes most students lose their focus in the classroom. Eze, Ezenwafor and Obidile (2016) posited that most educators are not comfortable with the use of lecture method for teaching financial accounting because it encourages rote learning (mere memorization of basic rules) which does not enhance student's academic achievement.

It is believed that the academic achievement of students in financial accounting can be greatly affected by how the teacher meets their learning styles. Ubulom and Ogwunite (2017) averred that the ability of financial accounting teachers to make the classroom friendly enough for students to express themselves without any fear or intimidations can increase their academic achievement and interest on learning the subject. Interest is a personal tendency to pay serious attention to details on things, events and activities. Literally, Renninger and Hidi (2015) quipped that interest is a multidimensional construct comprising affective (that is, liking), cognitive (that is, assigning value, storing knowledge), and behavioural (that is, re-engaging with specific content) components on a particular phenomenon or activity. Adekunle and Femi-Adeoye (2016) asserted that interest exists in two forms; situational and individual. According to the authors, situational interest is external and appears suddenly as a response to something in the environment while individual interest is internal, stable that develops gradually, and becomes a long-lasting preference on a person's value system. In educational context, Renninger and Hidi (2016) averred that interest is an element of emotional and behavioural trait that influences a student's vim and vigour in tackling educational programmes or other activities.

Interest however, is seen as subjective feeling of like or dislike among students towards studying financial accounting in schools. Students' interest is paramount in learning. Without interest, attention to instructional engagements in the classroom is not guaranteed and this is why financial accounting teachers must adopt student-centred approaches to make

the subject interesting for students (Ezenwafor & Akpobome, 2017). Among the student-centred approaches that can possibly keep students active and allow them to interact creatively with technology and with one another is the flipped classroom technique. Flipped classroom technique is also known as inverted classroom. Ozdamli (2016) explained that flipped classroom technique is one in which students review lecture materials before class as homework while the class time is dedicated to discussions, interactive exercises and independent work that would have previously been completed at home. The lesson is taught in advance, recorded in a digital device like Compact Disc (CD), internet, video, computer, mobile phone, IPad, tablet and YouTube to engage students in the learning process (Ikwuka & Okoye, 2021). In other words, students have opportunity of learning the lessons by watching them with their siblings, friends and parents at home before the lesson is discussed in the classroom.

Students can pause, rewind, and/or skip to master every aspect of the topic. Because of the differential level of the understanding of students, those with difficulty at grasping a subject matter have the opportunity of taking out extra time to study it at length without being left behind in the class (Beyoh, 2017). Flipped classroom technique refers to a teaching-learning method in which students gain first exposure to new material outside of class, usually via lecture videos and/or reading of other assigned material, and then the class time is used to do the harder work of assimilating that knowledge, perhaps through problem-solving, discussions or debates (Ikwuka & Okoye, 2021). Hence, JoRanna (2014) submitted that flipped classroom technique consists of two main components; the use of technologies outside classroom, and taking part in interactive discussions in real time in the classroom. It is called the flipped classroom technique because what used to be class work (the lecture) is done at home via media such as teacher-created videos, animated lessons and what used to be homework (assigned problems) is now done in class (Tan, Yue & Fu, 2017). However, the flipped classroom is much more than the videos because flip can be delivered via bulk SMS or any other digital media (Talbert, 2017). In this study, bulk Short Message Service (SMS) and Multimedia Messaging Service (MMS) are used as flips for instructional engagements. In situations where students do not have mobile phones with SMS and MMS, their parents' phones with such features are used for the study. Short Message Service (SMS) and Multimedia Messaging Service (MMS) are used because they are user friendly and can enable financial accounting students to express themselves without any fear or intimidations, thereby removing room for gender bias.

Gender is a biological characteristic differentiating between the feminine and masculine population. Despite the efforts of the Nigerian government to offer equal educational opportunities to both male and female, it appears that financial accounting subject is regarded as being predominantly made for boys and attempts being made to facilitate girls' participation in the area are not yielding much fruits. Eze, Ezenwafor, and Obidile (2016) affirmed that gender bias exists in financial accounting education. They noted that women have little or no access to some programmes like financial accounting which are seen to be men's domain and does not correspond to women's nature or physical capabilities. Omotayo (2014) stated that stereotyping occupations for male and female prevents equal and full involvement of girls in financial accounting subject, unlike their male counterparts. Perceived gender roles and ambitions may have an underline influence on students' interest in financial accounting. It is important therefore to test the effect of flipped classroom technique on interest of students in financial accounting, as well as gender differences in their interest in financial accounting at the secondary school level in Anambra State.

Statement of the Problem

Financial accounting is not only an intellectually stimulating subject which affects every aspect of human activities, but also plays an indispensable role in the monetary and economic development of any nation. Unfortunately, the WAEC Chief Examiner's report (2022) showed that students' achievement in financial accounting from 2016 to 2022 has been very poor in Anambra State. If this trend continues, students' may shy away from learning financial accounting in secondary schools in Anambra State. This is a pointer to the fact that the teaching and learning of financial accounting in Anambra State need to be handled using methods that align with students' interest to learning the concepts necessary for accounting competence. To address this issue, this study sought to examine the effect of the flipped classroom technique on students' interest in financial accounting and how it can minimize gender inequality towards learning the subject. These are the problems which form the focus of this study.

Purpose of the Study

The main purpose of this study was to determine the effect of flipped classroom technique on senior secondary school students' interest in financial accounting in Anambra State. Specifically, the study determined the:

1. Difference between the interest mean scores of students taught financial accounting with flipped classroom technique and those taught using lecture teaching method
2. Difference between the interest mean scores of male and female students taught financial accounting with flipped classroom technique
3. The significant interaction effect of treatments and gender on students' interest in financial accounting

Research Questions

The following research questions guided the study:

1. What is the difference between the interest mean scores of students taught financial accounting with flipped classroom technique and those taught using lecture method?
2. What is the difference between the interest mean scores of male and female students taught financial accounting with flipped classroom technique?

Hypotheses

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

1. There is no significant difference between the interest mean scores of students taught financial accounting using flipped classroom technique and those taught using lecture method
2. There is no significant difference between the interest mean scores of male and female students taught financial accounting using flipped classroom technique
3. There is no significant interaction effect of treatments and gender on students' interest scores in financial accounting

Method

The study adopted a non-randomized non-equivalence post-test quasi-experimental design. Two groups (experimental and control groups) were involved in the study. The experimental groups were exposed to topics in financial accounting using flipped classroom

technique and the control groups were taught the same topics using the lecture method. The population of this study comprised 1,876 SS II financial accounting students from six education zones in the 257 public secondary schools in Anambra State. The sample of the study comprised 59 (38 males and 21 females) SS II financial accounting students in four intact classes from four co-educational secondary schools in Awka and Onitsha education zones of Anambra State selected using multi-stage sampling procedure. Thus, 28 students (17 males and 11 females) were in the experimental groups while the 31 students (21 males and 10 females) formed the control groups.

The Financial Accounting Interest Questionnaire (FAIQ) was used for data collection. FAIQ was developed by the researcher based on students' experiences in the course of learning senior secondary school financial accounting. It was developed by the researcher to assess students' interest in financial accounting and it consisted of two sections A and B. Section A elicited personal data of the respondents such as gender and section B contained 25 items designed to elicit students' interest in financial accounting. FAIQ was structured on a four-point scale of Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD) with assigned weight of 4, 3, 2 and 1 respectively. This instrument served dual purposes. First, it was administered to the experimental and control groups as pre-test before the commencement of the experiment and secondly, as a post-test after the experiment to determine whether the interest of the two groups was significant or not.

The face validity of the instrument was worked on by three experts. One expert in Measurement and Evaluation and two experts in Business Education from the Department of Technology and Vocational Education, all in Nnamdi Azikiwe University, Awka. Copies of FAIQ were administered on 15 SS II financial accounting students from two co-education secondary school in Ogidi education zone, Anambra State who are not part of the study population. The internal consistency of FAIQ was determined using Cronbach alpha which yielded a reliability coefficient of 0.78. Four trained teachers were used for the experiment which lasted for six weeks.

Data related to research questions were analyzed using mean and standard deviation. ANCOVA were used to test the hypotheses at 0.05 level of significance. ANCOVA was considered appropriate because it controlled the initial differences across groups and increased the precision due to the extraneous variables. The decision on hypotheses was that where the p-value is less than or equal to the level of significance (0.05), the null hypothesis was rejected, otherwise the null hypothesis was accepted. The analysis was analyze using SPSS version 23.0

Results

Research Question 1

What is the difference between the interest mean scores of students taught financial accounting with flipped classroom technique and those taught using lecture method?
The answer to research question three is presented in Table 1.

Table 3: Interest mean scores of students taught financial accounting using flipped classroom technique and those taught with the lecture method

Source of Variance	N	Pre-test Mean	Post-test Mean	Pre-test SD	Post-test SD	Mean Gain
Experimental Group	28	47.63	71.51	4.25	6.97	23.88

Control Group						3.82
	31	40.12	43.94	4.03	4.61	
Mean difference						**20.06**

Data in Table 1 show that the post-test interest mean score for the experimental group was 71.51 while the pre-test interest mean score is 47.63. The post-test interest mean score for the control group was 43.94 while the pre-test interest mean score is 40.12. The result indicates that flipped classroom technique has a higher effect on students' interest scores in financial accounting than the lecture method. The standard deviation of the experimental group for both pre-test and post-test (4.25 and 6.97) was higher than that of the control group (4.03 and 4.61). This shows that the scores in the experimental group are more homogenous than the scores in the control group.

Research Question 2

What is the difference between the interest mean scores of male and female students taught financial accounting using flipped classroom technique?

The answer to research question four is presented in Table 2.

Table 2: Interest mean scores of students taught financial accounting using flipped classroom technique with respect to gender

Gender	**N**	**Pre-test Mean**	**Post-test Mean**	**Pre-test SD**	**Post-test SD**	**Mean Gain**
Male	17	26.63	40.96	2.98	3.25	15.3
Female	11	20.05	31.55	2.06	2.84	12.95
Mean Gain Difference						**2.83**

Data in Table 2 show that the post-test interest mean score for male students taught financial accounting with flipped classroom technique is 40.96 while the pre-test interest mean score was 26.63. The post-test interest mean score for female students taught financial accounting with flipped classroom technique is 31.55 while the pre-test mean score is 20.05. This result indicates that flipped classroom technique was more effective in enhancing the interest of male students in financial accounting than female students. The standard deviation of the male financial accounting students for both pre-test and post-test (2.98 and 3.25) was higher than female financial accounting students (2.06 and 2.84). This shows that the scores of female financial accounting students are more homogenous than male financial accounting students.

Test of Hypotheses

Hypothesis 1

There is no significant difference between the interest mean scores of students taught financial accounting using flipped classroom technique and those taught with lecture method.

Table 3: ANCOVA result showing differences in students' interest in financial accounting between the instructional approaches.

Source	SS	df	Mean Square	F	Sig.	Decision
Corrected Model	25738.553[a]	2	1324.573	82.735	.000	
Intercept	44621.321	1	44621.321	38.642	.000	
Pre-test	2218.127	1	2218.127	17.119	.001	
Method	4852.152	1	4852.152	49.073	.000	S
Error	22311.204	56	146.102			
Total	181665.089	59				
Corrected Total	39293.447	58				

a. R Squared = .643 (Adjusted R Squared = .639) S = Significant, NS = Not Significant

Data in Table 3 show that there was a significant effect of the treatment which accounted for 49 percent of the variance in students' interest scores, F (1, 58) = 49.073, p (0.000) < 0.05. Since the p-value is less than the level of significance, the null hypothesis was therefore rejected. Thus, there is a significant difference between students' interest scores when taught financial accounting using flipped classroom technique and those taught with lecture method.

Hypothesis 2

There is no significant difference between the interest mean scores of male and female students taught financial accounting using flipped classroom technique.

Table 4: ANCOVA result showing differences in interest mean scores of students taught financial accounting using flipped classroom technique with respect to gender

Source	SS	df	Mean Square	F	Sig.	Decision
Corrected Model	935.302[a]	2	48.113	94.287	.755	
Intercept	14108.108	1	14108.108	802.133	.092	
Interest	57.271	1	57.271	12.108	.108	
Gender	43.057	1	43.057	3.094	.210	NS
Error	679.142	25	.902			
Total	142210.210	28				
Corrected Total	902.142	27				

a. R Squared = .605 (Adjusted R Squared = .601) S= Significant, NS = Not Significant

Data in Table 4 show that there was no significant effect due to gender on the students' interest scores, F(1, 27) = 3.094, P (0.210) > 0.05. Since the p-value is greater than the level of significance, the null hypothesis was therefore accepted. Thus, there is no significant difference between the interest scores of male and female students taught financial accounting using flipped classroom technique.

Hypothesis 3

There is no significant interaction effect of treatments and gender on students' interest scores in financial accounting.

Table 5: ANCOVA result showing the interaction effect of treatments and gender on students' interest scores in financial accounting

Source	SS	df	Mean Square	F	Sig.	Decision
Corrected Model	38635.067[a]	4	197.558	55.069	.359	
Intercept	29038.024	1	29038.024	168.054	.754	
Pre-test	2098.176	1	2098.176	28.112	.207	NS
Method	1590.311	1	1590.311	42.079	.000	S
Gender	678.870	1	678.870	16.018	.224	NS
Method*Gender	33.402	1	33.402	5.926	.679	NS
Error	11328.115	56	94.121			
Total	359046.784	59				
Corrected Total	151779.003	58				

a. R Squared = .732 (Adjusted R Squared = .726) S = Significant, NS = Not Significant

Data in Table 5 show that the F-cal for Method*Gender is 5.926 with a p-value of .679 is greater than the level of significance (P-value > 0.05). Thus, the null hypothesis of no significant interaction effect between treatments and gender on students' interest scores in financial accounting was accepted. Therefore, the interaction effect between flipped classroom technique and lecture method used and gender on students' interest in financial accounting was not statistically significant.

Discussion of Findings

Findings of this study include the following:

Effect of Flipped Classroom Technique on Students' Interest in Financial Accounting

Findings of the study revealed that flipped classroom technique has a higher effect on students' interest scores in financial accounting than the lecture method. The flipped classroom technique highly aroused students' interest to learn financial accounting when compared to those taught with lecture method. This finding is consistent with Ego (2017) who reported that flipped classroom technique was an effective enhancer of students' interest than the lecture method because the flipped technique meets the personal learning styles of students. Also, the researcher believed that flipped classroom technique has a higher effect on students' interest scores in financial accounting than the lecture method because the flipped classroom technique enables students to engaged with financial accounting contents at a deeper level with their colleagues and teacher since they come to the class prepared. In support of the researcher's position, Beyoh (2017) reported that the interest of the students taught using flipped classroom technique increased because the flipped classroom creates a student-centred learning environment where teachers maximize classroom time to guide students in problem solving activities and establish abundant social interaction to engage better with the topics covered in the class.

Also, the study disclosed that there was a significant difference between students' interest scores when taught financial accounting using flipped classroom technique and those taught with lecture method. This finding is in agreement with Ugwoke, Edeh and Ezemma (2018) who reported flipped learning method enhanced students' interests significantly better than the lecture method. The researcher is of the opinion that students developed a stronger interest towards financial accounting when taught with the flipped classroom technique because it frees them from the boredom often associated with the lecture method. The above finding gives credence to what was earlier found by Ugwoke, Edeh and Ezemma (2018) which reported that flipped classroom technique highly improved students' interest in

accounting than the lecture method. A probable reason for the enhanced significant interest in financial accounting among students taught with flipped classroom technique is that it allows students to repeat the lesson more than once based on their individual differences and comprehension ability with the best use of modern technology in education where students are active learners.

Effects of Flipped Classroom Technique on Students' Interest in Financial Accounting with Respect to Gender

Outcome of the research showed that flipped classroom technique was more effective in enhancing the interest of male students in financial accounting than female students. Although, male students' interest scores in financial accounting were more than female students when taught with flipped classroom technique, the difference are not significant. These findings are in consonance with Beyoh (2017) that there was no gender difference among students in their interest in accounting when taught with flipped classroom technique. This means that flipped classroom technique is not gender sensitive in relations to students' interest in financial accounting. The researcher is of the opinion that flipped classroom technique has the potential of minimizing gender differences in interest among secondary school students because they highly appreciate the use of technology in learning financial accounting.

Interaction Effect of Treatments and Gender on Students' Interest in Financial Accounting

The study discovered that the interaction effect between flipped classroom technique and lecture method used and gender on students' interest in financial accounting was not statistically significant. This implies that both male and female students participated and achieved actively, hence there was no statistical interaction of flipped classroom technique and lecture method and gender on students' interest scores in financial accounting. The non-significant interaction effect of treatment and gender means that the treatment conditions did not discriminate across gender in this study. Perhaps, the self-learning and visualization of online videos boosts students' engagement and develops team-based skills which makes the treatment as well as gender has little or no effect on students' interest in financial accounting.

Conclusion

The call for pedagogical approaches that challenge the passive nature of the lecture method prompted the investigation of the effect of flipped classroom technique on students' interest in financial accounting. The lecture method for teaching and learning financial accounting does not foster a rich student-centred environment where students become active agents of their own learning. Based on the findings of the study, it was concluded that flipped classroom technique is not only gender-friendly but also an active instructional approach that positively enhances students' interest in financial accounting.

In the light of the findings of the study, recommends that financial accounting teachers should be encouraged to cooperate with parents so that the home aspect of flipped classroom technique can be taken seriously by students in order to fully prepare themselves for class discussion. Management of secondary schools should be subject financial accounting teachers to capacity building programmes through workshop, seminar and symposium on flipped classroom technique to enable them to learn the rudiments on how to use the technique for teaching financial accounting. Furthermore, curriculum planners should update their curriculum by integrating flipped classroom technique into the curriculum of

secondary school financial accounting and should be made mandatory for teaching and learning among financial accounting teachers and students. In addition, Government and technology firms should provide the necessary environment, technologies, and other infrastructure that support the successful implementation of flipped classroom technique among financial accounting teachers and students.

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