

EFFECTS OF FLIPPED CLASSROOM TEACHING METHOD ON THE ACADEMIC ACHIEVEMENT OF ENGLISH LANGUAGE STUDENTS IN SENIOR SECONDARY SCHOOLS IN ABAKALIKI EDUCATION ZONE OF EBONYI STATE.

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Abstract

The study was on the effects of flipped classroom method on senior secondary school students' achievement in English Language in Abakaliki zone of Ebonyi State. Three specific purposes of study was to: ascertain the effect of the flipped classroom method on students' mean achievement in English Language; ascertain the effect of the flipped classroom method on the mean achievement of male and female student, examine the interaction effect of instructional strategies and gender on students' achievement in English Language in Abakaliki education zone of Ebonyi State. Three research questions and three null hypothesis rooted in the purpose of the study were formulated that guided the study. The design of the study was quasi-experimental research design and the population was four thousand, eight hundred and twelve (4,812) senior secondary school students in the public secondary schools in Abakaliki education zone of Ebonyi state. The instrument for data collection was the English language multiple Choice Test(ENLMCT), data were analyzed using mean and standard deviation(SD) for all the research questions while the null hypotheses were tested using the analysis of co-variance(ANCOVA). The findings of the study revealed that the mean academic achievement score of senior secondary school students taught English language using the flipped classroom method was higher than those taught English language using the conventional strategies, female senior secondary school students obtained higher mean scores than the male students taught English language using the flipped classroom method and that there no interaction effect between strategies and gender in senior secondary school students' academic achievement in English language and the results of data analysis in ANCOVA tables revealed that there were significant differences in the mean scores/ academic achievement of senior secondary school students taught English language using the flipped classroom method. Based on these findings, the researcher recommends that English language teachers should be encouraged to use the flipped classroom method of instruction in the teaching and learning of the subject to enhance students' active participation in the instructional process rather than being passive learners.

Keywords: Flipped Classroom Method, academic achievement, English language.

INTRODUCTION

Educational instructors have been agitating for a change / reforms in the teaching /learning pedagogy geared towards moving away from the traditional instructional methods (where the teacher is central to the teaching / learning pedagogy) that leads to passive learning to other instructional methods that leads to active learning. (Biggs, 2003). However, the need for introducing a more effective method for teaching English language in secondary schools is now very imperative so as to promote an increased students' academic performance, both in their internal and external assessments.

The flipped classroom teaching (FCM) method easily comes to focus; though there are other classrooms teaching pedagogy such as the lecture-based, method, Visual Auditory and Kinesthetic (VAK) method, Dual coding method, Inquiry based ,Spaced learning, Explicit instruction and so on.

The flipped classroom teaching is an innovating teaching technique that works in contrast to traditional classroom learning. In a traditional classroom, students are introduced to new concepts and are asked to practice those concepts as homework; whereas in flipped classroom pedagogy, students learn new concepts in their homes and practice them in school in the form of presentations, debates or laboratory experiments (Onuoha, 2024). To Bergman and Sams (2012), the flipped classroom is a blended-learning approach which uses a combination of face-to-face-teaching and learning with digital and online learning and this is becoming more widespread in higher education as a way to engage students in their own learning and as an alternative to the didactic lecture method (Butt, 2014, Enfield, 2013). This not only increases student's engagements but also boost their self-confidence and analytical skills. The traditional lecture method is predominately a passive instructional pedagogy for students. They merely take notes devoid of valuable face-to-face intra-class interaction which ultimately boost the learning instruction. Classroom instruction can be made interactive when for example, questions are asked or multiple choice questions are linked to personal respond(s) systems (especially when) "clicker" are used (Lasry, Mazu & Watkins, 2008; Watkins & Mazur, 2010).

In flipped teaching or the flipped classroom, traditional lectures / instruction are replaced sometimes entirely by interactive sessions made possible via the digital and online instructional aids. Students study materials prior to the session, and this can take the form of short-online screen casts (10-20 minutes), entire recorded lectures or directed reading. The screen casts and the recorded lectures can be produced by the instructor since there is an avalanche of resource materials on the web for such purpose.

Flipped classroom teaching (FCM) as a pedagogical strategy uses feedback in-between classroom activities and the student's home assignments in preparation for the classroom meeting (Enwere, 2012). The main objective is to increase / elevate ultimate student's classroom participation, enhance student's motivation, encourage students to prepare prior to classroom instruction, and also to allow the instructor to fine-tune the classroom activities to best meet student's needs (Enwere, 2012).

In flipped classroom method (FCM) of teaching, it is obvious that the work students do at home or outside the school (official) instruction hours is used to leverage on the time they spend in class. The onus of flipping the classroom are not new in addition to the fact that instructors are aware that varying the teaching strategies every now and then can keep students excited for

classroom instruction and using the flipped classroom pedagogy is an effective method and a great way of engaging students into the learning process on a deeper way of engaging interest and ultimately improving their scores. The instructor in the flipped classroom instruction carefully selects and utilizes flexible features of learning environment to design instruction that meets diverse learner needs. The instructor distinguishes lower-level and higher-level cognitive skills and makes decisions about what to deliver and how to deliver it in a way that maximizes class time and leads to deep, meaningful learning. This replaces the traditional lecture method and is therefore used to develop preceding exercises that the students would work on in the classroom.

Several studies within the related literature confines reports of persistent dismal performance in English language by senior secondary school students in Senior School Certificate Examination (SSCE) and other external examinations (Sa'ad and Usman, 2014). Amongst the factors responsible for student's poor performance in English language especially in Essays and Comprehension questions is the wrong/poor use of the language during teaching / learning instruction (Faniran 2011) and also the predominant use of lecture method (Expository method) in teaching. The lecture method is majorly teacher centered with the teacher assuming the sole custodian of knowledge while the learners are passive listeners or dormant recipients of the lessons. This equally happens in most of the traditional teaching pedagogies that are teacher centered instead of student-centered. Though most of these traditional instructional pedagogies has the advantages of being less tasking, allows for a wide coverage of content within a short time, allows for teaching large number of students at the same time, yet, they do not always produce positive learning outcomes in many students. This is solely because most of them encourage rote learning (mere memorization of basic rules) which does not enhance deep meaningful learning and increased academic achievement.

The academic achievement of students is a major indicator as to whether or not learning has taken place (Ogundu, 2000). According to Okoli and Egbunonu in Enwere & Enwere (2014), academic achievement involves observable and measurable performance of students that take in the presence of a standard for measuring academic excellence. Conventionally, academic achievement is the outcome of education, it is the extent to which a student, teacher or institution has attained their short or long term educational goals. It is measured by examinations or continuous Assessment or Cumulative Grade Point Average (CGPA). There is no general agreement on how it is but tested or which aspects are most important-procedural knowledge such as skills or declarative knowledge such as facts. Individuals having different scores depend on many factors such as intelligence, personality, mental curiosity, interest, learning environment and parental care/family climate.

It is generally observed that teachers can enhance students' academic achievement by employing different teaching methods. In teaching English language, variations in teaching methods are well recognized.

The revolutionary effects of the flipped classroom method (FCM) as a teaching method have been documented by a number of scholars such as Simkins and Maier (2004); Novak (2006); Marr, Blake & Garvin (2003); the American society for cell Biology in Enwere and Enwere (2014) all point to the fact that the revolutionary effects of FCM method on students' learning and success culminates into: increased classroom interactivity; provision of ongoing formative

assessment to students; improvement in class preparation, improvement in students study habits.

Going further, Cohen, Kulik & Kulik (2009) investigation revealed that FCM as a teaching method enhanced students' academic achievement in mathematics. Fitz-Gibon (2010) also from his study revealed that low achieving students improved better when taught with FCM. Richard (2004) in his study reported the influence of gender on FCM students' achievement, many researchers as Good and Brophy (1984) observed that although boys generally receive more praise than girls from their teachers, they also receive more criticism and performs higher than girls in class.

This is in contrast to Akpochafor's view that gender equality is connected to education but today's classroom situation and gender bias from the society appear to have allowed the school environment, curriculum, pedagogy, instructional materials among others influence the attitudes of teachers in favour of the male students (AKpochafor, 2009). Agreeing with the above, Onokotu (2000), observe that though boys and girls have similar abilities and capabilities, learning in the same school, taught by the same teacher, using the same syllabus, girls in the end still perform poorly in English language classroom.

However, students' poor performance in English language and poor attitudes towards the teaching and learning of the subject has been observed and blamed on the way the Nigerian classroom teachers dominate the teaching and learning process. They minimize students' participation and cause them to be passive. English language is a problem-solving discipline and life-wire (preparatory) oriented subject which needs active participation so that the retention and achievement level can be actualized. Their strategies and methods used in teaching English language appear not to be effective. There are other factors that contribute to the students' poor performance in English language. For example, differences in the orthographic system between the L_1 and L_2 and the L_1 interference (Piaget, 1997).

The flipped classroom teaching method was introduced to reduce passivity and it has the capacity of making the teaching / learning instruction student-centered. It encourages students' engagement and also boosts their self-confidence and analytical skills.

Regrettably, in Abakaliki Education zone of Ebonyi State, this teaching strategy is under-utilized in the English language teaching instruction and this has invariably lead to the poor academic achievement of students in this subject in both internal and external examinations. The problem of this study is therefore to investigate the effects of flipped classroom method (FCM) on the academic achievement of English language students in Senior Secondary Schools in Abakaliki Education Zone of Ebonyi State.

The study was delimited to state owned senior secondary schools in the zone and sought to determine the effects of using Flipped Classroom Teaching Method (FCM) on students' academic achievement in English language in senior secondary schools in Abakaliki Education Zone of Ebonyi State. Specifically, the study sought to ascertain.

- a. The effect of flipped classroom method (FCM) on the mean academic achievement of senior secondary school students in English language in Abakaliki Education zone of Ebonyi State.

- b. The effect of flipped classroom method (FCM) on the mean achievement scores of male and female senior secondary school students in English language in Abakaliki Education zone of Ebonyi State.
- c. The interaction effects of instructional strategies and gender on Senior Secondary School students achievement in English language in Abakaliki Education Zone of Ebonyi State.

Three research questions were posed to guide the researcher in conducting this study. They are:

1. What are the effects of flipped classroom method on the mean academic achievement of senior secondary school students in English Language in Abakaliki education zone of Ebonyi state?
2. What is the effect of flipped classroom method on the mean academic achievement of male and female senior secondary school students in English Language in Abakaliki education zone of Ebonyi state?
3. What is the interaction effect of instructional strategies and gender on senior secondary school students' academic achievement in English Language in Abakaliki education zone of Ebonyi state?

There were also three (3) corresponding null hypotheses which were tested at 0.05 level of significance that guided the conduct of the study thus:

H₀₁: There is no significant difference in the mean academic achievement scores of students taught English language using flipped classroom method (FCM) and those taught using the conventional method.

H₀₂: There is no significant in the mean academic achievement scores of male and female senior secondary school students taught English language using flipped classroom method and those taught without using the flipped classroom method (FCM).

H₀₃: There is no significant difference in the interaction effect between the instructional strategy and gender on students' mean academic achievement scores in English language.

2. Conceptualization

English language in Nigeria

English language is a West Germanic language in the Indo-European family whose speakers (Anglophones) originated from the early medieval England. The study of the English language is an in-depth consideration of the written and verbal communication aspects of the language. It explores the building blocks of the language covering aspects as phonetics, semantics, pragmatics and so on. English language learning (study) has evolved and developed over time to become useable in a huge variety of formal situations and by a huge variety of people. It is widely learnt as a second language (L₂) around the world, with more second language (L₂) speakers than the native speakers (Onuoha, Nwobi and Agwu 2023).

In Nigeria, the advent of English language was through British colonization i.e. through the European contact around the 15th century, and through commerce and missionary activities (Evue, 2013). Missionary activities specially enhanced the speed of growth of English language to all other parts of the country. According to Udofot (2011), English language has been given a

pride of place in Nigerian educational system. A good use of the language is highly cherished and such gives the user a defining status. Upubor in Uyo(2006) posits that English is the language of Nigerian elites . Mastery of the languages defines the elite status and correlates with other social markings such as post -secondary or professional education, a good job and the fat income that comes with it; hence having a mastery of English language is one of the goals of those aspiring to elite status. The post -colonial and independent Nigeria uses English language as an official language. Thus, the language has an elevated status, playing a significant role in the socio-economic and political activities of Nigeria. Though Nigeria is a multilingual nation with three major languages and over four hundred local ones, English Language holds sway as her official Language. It is the language in which government affairs especially at the state and national level are carried out.

English language is prioritized in Nigeria's educational system and growth because it plays a notable role as a medium of knowledge delivery/instruction in Nigerian schools. It is the language of instruction particularly at the upper levels of primary and secondary schools and beyond. It is also a compulsory subject which must be passed at all levels of education in Nigeria (Danladi, 2013) and also one of the criteria for university admission in the country.

Today, English language has grown to become the official language of the country and continues to play an important role as language of education, media, religion, commerce, banking, politics, governance, health, communication, aviation and so on. Therefore, English language is important for all members of a modern society as a habit of mind for use in the work place, business, finance, and personal decision makings. English is fundamental to national prosperity, development, peace and unity and in providing tools for understanding science, engineering, technology and so on. It is essential in public decision making; and children who are functional in English language are capable of independent thinking, abstract thinking and critical thinking towards problem solving (Odili in Olelakan, 2016).

English language Teaching Methods.

According to Asher and James in Onuoha (2014), methods are the combination of techniques that are used and practicalized by the teacher in the classrooms to teach their students. It is a set of principles and techniques used to help students achieve learning outcomes. Teaching methods help students apply the content in (a) particular context(s). An English language teacher is the pivot of the success of English language pedagogy i.e. in imparting skills, competency and fluency to the learner in the school. He guides the learner(s) in the pedagogy of English morphology, grammar, syntax, lexis, phonology and so on and to do it effectively, he must adopt the right teaching method. The methods, however, available to the English language teacher include but not limited to:

- a. Direct method
- b. Grammar Translation Method (GTM)
- c. Total Physical Response (TPR)
- d. The (use) structural approach
- e. Lexical approach
- f. Communicative Language Teaching (CLT) approach
- g. The Silent method and so on.

To Okafor(2009), there are varieties of teaching methods needed for enhancing effective teaching and learning in the class and these teaching methods are required to motivate the learners' interest .It then lies on the teacher to select and use the right method for a particular topic in the interest of the learner(s).

The Grammar Translation Method (GTM) otherwise called the classical method helps the students to learn all grammar rules, so they can be able to translate a number of sentences. The Total Physical Response (TPR) follows the idea of learning by doing. Learners especially the beginners learn English through a series of repetitive actions such as “stand up”, ‘ clap your hands’, ‘ close the door’, ‘ walk to the car’, ‘ touch your knee’. With the TPR, most important skill is aural comprehension and other things will follow naturally later (Intesol Teach Abroad, 2003).

The Flipped Classroom Method/Instruction

The flipped classroom is an innovative teaching technique that works in contrast to new traditional classroom learning. In a traditional classroom, students are introduced to new concepts and are asked to practice those concepts as homework. Whereas, in flipped classroom, students learn new concepts in their homes and practice them in school in the form of presentations, debates or laboratory experiments. To Bergman and Sams (2003); Butt (2014); Enefield (2013), the flipped classroom is a blended-learning approach that uses a combination of face-to- face teaching and learning with digital and or on-line learning that is becoming more widespread in higher institution/education as a way to engage students in their own learning and as an alternative to their didactic lecture method. Flipped classroom uses feedback in-between classroom activities and the students' home assignments in preparation for the classroom meeting (Enwerem, 2013). The main objective is to increase/elevate students' classroom participation, enhance students' motivation, encourages students to prepare prior to classroom instruction and also to allow the instructor to fine-tune the classroom activities to best meet students' needs ultimately boosting academic achievement (Enwerem, 2014).

There abound many other teaching strategies that can be employed in English language classroom instruction. They are: the collaborative learning, the dual coding method, the explicit instruction, the effective questioning techniques, the literature circle, the scaffolding learning strategy, the simulation technique, the cooperative learning strategy and so on.

Theoretical Framework of the study

The theoretical frame work of this study is anchored on the Albert Bandura's social learning theory. This theory focuses on the learning that occurs within a societal context. It posits that people learn from one another by observing, modeling and imitating the behavior of others. The theory emphasis is of the notion that behavior is learnt from the environment. The relevance of this theory to the study is that the Flipped Classroom Method is a classroom instructional strategy and the classroom as part of the social order of the school social system employs students' interaction and engagement in the teaching and learning processes to enhance students' learning.

METHODOLOGY

The study adopted non-equivalent pretest, posttest, control group quasi-experimental design. The quasi-experimental design was used since the classes of the students that were used for the study had been organized into intact classes to provide stability and avoid disruption of class lessons and class arrangement. To Borg and Gall (2007), it is a suitable alternative to experimental design where randomization is not used or applied. Respondents in the control group were exposed to selected structured English language learning tasks likewise respondents in the experimental group but with the Flipped Classroom Method (FCM). Pretests were administered to all groups.

The study was carried out in public secondary schools in Abakaliki education zones of Ebonyi state. Ebonyi state has three education zones namely: Abakaliki education zone that comprises Abakaliki, Ebonyi, Izzi, and Ohaukwu local government areas; Onueke education zone comprises Ezza south, Ezza north, Ikwo and Ishielu local government areas; while Afikpo education zone comprises Afikpo south, Afikpo north, Ivo, Ohaozara and Onicha local government areas. Abakaliki education zone which is the area of this study is bound by the north by Cross River and Benue states; by the south by Ezza south and Ezza north while by the east by Ohaukwu and Ishielu local government areas of Ebonyi state. The researcher choose Abakaliki education of Ebonyi state as the area of this study so as to provide empirical evidence on the effects of Flipped Classroom Method(FCM) on senior secondary school students' academic achievement in English language.

The population of the study was four thousand, eight hundred and twelve (4,812) senior secondary school two (SS2) students in the public secondary schools in Abakaliki education zones of Ebonyi state. (Source: Ebonyi State Secondary Education Board, EBSSEB,2023). Senior secondary school 2 classes were used for the study because English language is a core and compulsory subject is offered by the students. They (students) have also been exposed to basic processes and procedures of English language instruction. Four (4) senior secondary schools with intact classes having a sample size of one hundred and forty four (144) senior secondary school 2 (ss2) students in Abakaliki education zone were randomly selected. Out of these four schools, two schools were assigned to the experimental group while the other was assigned to the control group using simple random sampling technique by balloting.

The English Language Multiple Choice Achievement Test (ENMCAT) constructed by the researcher was the instrument used for data collection. The instrument was validated for relevance, clarity and purposefulness. The items of the instrument were further treated to item analysis of difficulty index and discrimination power as contained in appendix 1. After item analysis, none was dropped out of the thirty (30) items. The instrument .i.e. thirty (30) question items were treated to a determination of reliability using Kuder Richardson 20 (Kr_{20}) statistics using 30 SS 2 students from Urban Model Secondary School, Ezzama, Onueke who were considered equivalent to those in Abakaliki zone. By this analysis, a reliability co-efficient of 0.79 was obtained which shows a high internal consistency, thereby making the instrument suitable for use for the study.

DATA PRESENTATION AND ANALYSIS

The data collected for the study were analyzed and presented in tables in line with the questions and hypotheses that guided the study.

4.1 Research question 1:

What is the effect of Flipped Classroom Method (FCM) on the mean academic achievement of senior secondary school students in English Language in Abakaliki Education zone of Ebonyi state?

Data collected from English Language Multiple Choice Test(ENMCT) was used to answer the research question and mean scores obtained from pretest and posttest were statistically adjusted to take care of the group difference . Summary of results of data analysis were presented in table 1.

Table 1: Effects of Flipped Classroom Method on student's mean achievement in English Language.

Instructional strategy	Mean	Standard Deviation(SD)	Case
Flipped Classroom Method	81.37	5.799	70
Conventional strategies	61.75	14.85	74

The results of data analysis presented on table 1, revealed that senior secondary school students taught English language using the flipped classroom method performed better than those taught English language using the conventional methods. The reason is that senior secondary school students in the experimental group (flipped classroom method) obtained a high mean score of 81.37 and standard deviation of 5.799 against the students in the control group (conventional strategies) that obtained low mean score of 61.75 and standard deviation of 14.85. This implies that the use of the Flipped Classroom Method improves students' academic achievement in English language than the conventional strategy.

4.2: Research Question 2

What is the effect of Flipped Classroom Method on the mean academic achievement of male and female senior secondary school student in English Language in Abakaliki Education zone of Ebonyi State?

The mean scores of the male and female senior secondary school students taught English Language using the Flipped Classroom Method for pretest and posttest for the experimental group (Flipped Classroom Method) were used to answer this research question. Summary of results of data analysis were presented in table 2.

Table2: Mean scores of male and female senior secondary school students taught English Language using the Flipped Classroom Method.

Gender	Mean	Standard Deviation (SD)	Cases
Male students	67.87	18.11	69
Female students	74.44	10.57	75

The results of data analysis presented in table 2 revealed that the Flipped Classroom Method seemed to have much differential effect on female students. This is because female students had a mean score of 74.44 and a Standard Deviation (SD) of 10.57 while the male students had a mean score of 67.87 and a Standard Deviation (SD) of 18.11. This showed that female students

performed better than the male students in English Language when the Flipped Classroom Method was used in English Language classroom instruction.

4.3: Research Question 3

What are the interaction effects of instructional strategy and gender on senior secondary school students' academic achievement in English Language in Abakaliki Education zone of Ebonyi State?

The mean scores of senior secondary school students taught English Language using the Flipped Classroom Method and the conventional strategies were used to answer the research question. Summary of the results of data analysis were presented in table 3.

Table 3. Interaction effects of instructional strategy and gender on students' academic achievement in English Language.

Instructional strategy	Male	Female
Flipped Classroom Method	79.83	81.00
Conventional strategy	54.82	67.34

The results of data analysis presented in table 3 revealed that instructional strategy used in teaching English Language had no interaction effect on senior secondary school students' academic achievement in the control group and in the experimental group. This is because male and female students in the experimental group that were taught English Language using the Flipped Classroom Method obtained mean score of 79.83 and 83.00 respectively while the male and female students that were taught English Language using the conventional strategy had their mean scores of 54.82 and 67.34 respectively also. Based on the results of data analysis presented in table3, the researcher observed that there was no interaction effect between instructional strategy and gender on senior secondary school student' academic achievement in English Language in Abakaliki Education zone of Ebonyi State.

4.4. Testing the Null Hypotheses

The results of data analysis of the following hypotheses tested at 0.05 level of

HO₁. There is no significant difference in the mean academic achievement scores of senior secondary school students taught English Language using the Flipped Classroom Method and those taught using the conventional strategy.

Table 4: Analysis of Covariance for students' mean academic achievement in English Language using the Flipped Classroom Method.

Source of variation	Sum of Square	Df	Mean of Square	f	Sig of f
Covariates	3648.096	1	3648.096	50.468	.000
Pretest	3648.096	1	3648.096	50.468	.000
Main Effects	18341.754	2	9170.877	126.869	.000
Strategy	16983.267	1	16983.267	234.946	.000
2-way interactions	58.152	1	58.152	.804	.371

Explained	22048.002	4	5512.000	76.253	.000
Residual	10047.748	139	72.286		
Total	32095.750	143	224.446		

Significant at $P < 0.05$

In the ANCOVA table, the result of the hypothesis 1 presented in table 4 showed that the value of f-sig (0.00) is lower than the value of f-cal. (234.946) at 0.05 level of significance. This indicated that hypothesis 1 was rejected. It equally showed that there is significant effect in the mean academic achievement scores of senior secondary school students taught English Language using the Flipped Classroom Method and those taught using the conventional strategy.

HO₂ : There is no significant difference in the mean achievement of male and female senior secondary school students taught English Language using the Flipped Classroom Method and those taught without using the Flipped Classroom Method.

Table 5: Analysis of Covariance for students' mean achievement in English Language using the Flipped Classroom Method.

Source of variation	Sum of square	Df	Mean of Square	f	Sig of F
Covariates	5.886	1	5.886	.208	.650
Pretest	5.886	1	5.886	.208	.650
Main Effects	249.425	1	249.425	8.828	.004
Gender	249.425	1	249.425	8.828	.004
Explained	255.311	2	127.655	4.804	.014
Residual	1893.748	67	28.254		
Total	2148.343	69	31.135		

Significant at $< P 0.05$

The summary of results of test of ANCOVA as presented in table 5 showed that the value of f-sig. (.004) is less than the value of f. cal. (8.828) at point (P) 0.05. This indicated that the null hypothesis 2 was rejected on the ground that the value of f-sig. (.004) is less than the value of f-cal.(8.828) at 0.05 level of significance. This equally implies that there is a significant main effect of the Flipped Classroom Method on the mean academic achievement of male and female senior secondary school students in English Language in Abakaliki Education zone of Ebonyi State.

HO₃: *There is no significant difference on the interaction effect between the instructional strategy and gender on students' mean academic achievement scores in English Language.*

Table6: Analysis of Co-variance for students' academic achievement based on methods and gender.

Source of variation	Sum of square	Df	Mean of Square	f	Sig. of F.
Covariates	3648.096	1	3648.096	50.468	.000
Pretest	3648.096	1	3648.096	50.468	.000
Main Effects	18341.754	2	9170.877	126.869	.000

Strategy	16983.267	1	16983.267	234.946	.000
Gender	2023.852	1	2023.267	27.998	.000
2-way interactions	58.152	1	58.152	.804	.371
Method Gender	58.152	1	58.152	.804	.371
Explained	22048.002	4	5512.000	76.253	.000
Residual	10047.748	139	72.286		
Total	32095.750	143	224.446		

In the ANCOVA table, the summary of results of hypothesis 3 as presented in table 6 shows that the value of F-sig. (0.371) is less than the value of F-cal. (0.804) at a point (p) 0.05 alpha level of significance. This indicated that hypothesis 3 is rejected on the ground that the value of F-sig (0.371) is less than the value of F-cal. (0.804) at 0.05 level of significance. Therefore, there is significant interaction effect of instructional strategy and gender on mean academic achievement of senior secondary school students in English Language.

4.7 Summary of Results

1. The results of data analysis presented in table 1 revealed that the mean academic achievement score of senior secondary school students taught English Language using the Flipped Classroom Method was higher than those taught English Language using the conventional strategy.
2. The results of data analysis presented in table 2 revealed that male and female senior secondary school students taught English Language using the Flipped Classroom Method obtained higher mean scores than those taught English Language using the conventional strategy.
3. The results of data analysis presented in table 3 revealed that there was no significant interaction effect between strategy and gender in senior secondary school students' academic achievement in English Language and the results of data analysis in ANCOVA tables revealed that there were significant differences in the mean scores of senior secondary school students taught English Language using the Flipped Classroom Method.

Discussion of Findings

1. The effects of the Flipped Classroom Method on students mean academic achievement in English Language.
2. The effect of the Flipped Classroom Method on mean academic achievement of male and female senior secondary school students in English Language.
3. The interaction effect of instructional strategy and gender on students' academic achievement in English Language.

Effects of the Flipped Classroom Method on students' mean academic achievement in English Language

The findings of results of data analysis presented in table 1 revealed that senior secondary school students taught English Language using the Flipped Classroom Method performed better than those taught English Language using the conventional strategy. The reason is that senior secondary school students in the experimental group (Flipped Classroom Method) obtained a higher mean score of 81.37 and standard deviation of 5.799 against their counterparts in the

control group (conventional strategy) that obtained a low mean score of 61.75 and standard deviation of 14.854. This implies that the use of the Flipped Classroom Method improves students' academic achievement in English Language more than the conventional strategy.

In the ANCOVA table, the result of hypothesis 1 presented in table 4 showed that the value of $f\text{-sig.}(.000)$ is less than the value of $F\text{-cal.}(234.946)$ at 0.05 level of significance. This indicated that hypothesis 1 is rejected. It showed that there is a significant effect in the mean academic achievement scores of senior secondary school students taught English Language using the Flipped Classroom Method and those taught English Language using the conventional strategy. The finding is in line with the view of Enwere (2012), who observed that the Flipped Classroom Method increases students' classroom participation, enhance students' motivation, encourage students to prepare prior to classroom pedagogy/instruction and also to allow the instructor to fine -tune the classroom activities to best meet students' needs. According to him, students taught using the Flipped Classroom Method performed better than those taught using the lecture/conventional method. Equally, Fitz- Gibon (2010) in his research finding mentioned that low achieving students improved better when taught with the Flipped Classroom Method.

Effects of the Flipped Classroom Method on Mean Academic Achievement of Male and Female students in English Language.

The results data analysis presented in table 2 revealed that the flipped classroom method seemed to have much differentiated effect on female students. This is because female students had a mean score of 74.440 and a standard deviation of 10.556 while the male students had a mean score of 67.869 and a standard deviation of 18.108. This showed that female students perform better than the male students in English Language when the flipped classroom method is used in classroom instruction.

The summary of the findings of test of significance of difference in the mean achievement scores of students based on their gender as presented in table 7 showed that the value of $F\text{-sig.} (0.004)$ is less than the value of $F\text{-cal.}(8.828)$ at 0.05 level of significance. This indicated that the null hypothesis2 was rejected on the ground that the value of $F\text{-sig.} (0.004)$ is less than the value of $F\text{-cal.} (8.828)$ at 0.005 level of significance. This implies that there is a significant main effect of the Flipped Classroom Method on the academic achievement of male and female senior secondary school students in English Language in Abakaliki Education zone of Ebonyi State.

The findings of this study agreed with the findings of Akpochafor (2009) who studied gender in relation to academic success in reading and mathematics subjects and found out that gender is one of the most significant predictors of students' success in reading but not in mathematics in elementary and middle schools. The authors determined age to be a better predictor of reading than was the gender through grade 2 but gender through a better predictor than age for Graden3-5.(Oshima and Domasleki,2005). Regardless of the degree of emphasis, one may put on a student's age or gender when it relates to academic success, there is reason to believe that both age and gender can be considered factors in a student's interest of boys are better than the girls. However, they explained that they don't know the main cause of these differences. There is a consensus that girls outperform boys in reading and languages (Calhoon, 2005; Hussar and Bailey,2009; Lai,2010).

Interaction effects of instructional strategies and gender on students' academic achievement in English Language.

The findings of results of data analysis presented in table 3 revealed that instructional strategies used in teaching English Language had no interaction effect on senior secondary school students' academic achievement in the control group and in the experimental group. This is because male and female students in the experimental group taught English Language using the Flipped Classroom Method obtained mean scores of 79.83 and 83.00 respectively while the male and female students had a mean score of 54.83 and 67.34 respectively. Based on the results of data analysis presented in table 3 above, the researcher observed that there were no interaction effects between instructional strategy and gender on senior secondary school students' mean academic achievement in English Language in Abakaliki Education zone of Ebonyi State. Again, the summary of results of hypothesis 4 as presented in table 9 showed that the value of $F_{sig.}(0.371)$ is less than the value of $F_{cal.}(0.804)$ at the point of 0.05 alpha level of significance. This indicates that hypothesis 3 is rejected on the ground that the value of $F_{sig.}(0.371)$ is less than the value of $f_{cal.}(0.804)$ at 0.05 level of significance. Therefore, there is significant interaction effect of instructional strategies and gender on mean academic achievement of senior secondary school students in English Language. This finding agreed with the finding of Brooks (2007) in his study that there were interaction effect between instructional strategies and gender on the mean academic achievement of students in English comprehension. Singleton (2009), also found out in his research that there were no interaction effect between method of teaching instruction and gender on the mean academic achievement of students in classroom activities.

Conclusion

The findings of the study revealed that senior secondary school students taught English language using the flipped classroom method performed better than those taught English language using the conventional strategies. The study also proved that female senior secondary school student in both the experimental and control groups performed better when compared to the performance of male senior secondary school students in English language classroom instruction when the flipped classroom method is used. Finally, the study revealed that there were no significant interaction effects between strategies and gender in senior secondary school students' academic achievement in English language and the results of data analysis in ANCOVA tables revealed that there were significant differences in the mean scores /achievement of senior secondary school students taught English language using the flipped classroom method of instruction.

Recommendations

Based on the findings of the study, the following recommendations were made:

1. Government through its ministries and agencies should organize seminars and workshops for the training and retraining of English language teachers for classroom effectiveness.
2. Curriculum planners should adopt instructional the flipped classroom method of classroom instruction as an adequate teaching strategy for teaching English language which should be emphasized in students' textbooks and teachers guide.

3. The teaching of English language should be done with the flipped classroom method for better understanding, academic achievement and retention of concepts and rules.

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