

Mastery Learning versus Flipped Model Approach in Secondary School English Language Teaching in Abia State, Nigeria

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Abstract: This study which adopted the quasi-experimental research design sought to determine if secondary school students taught some units of English language using the Mastery Learning Strategy (MLS) would perform significantly better than their counterparts taught the same lessons using the expository instructional approach. The population comprised 14,623 Senior Secondary School II (SS II) students in public secondary schools in Abia State, while a sample of 96 students was selected using purposive sampling from two intact classes in one co-educational school. Data were collected using researcher-developed instruments: the English Language Performance Test (ELPT), Cognitive Ability Test (CAT), and Flipped Classroom Instructional Package in English (FCIPE). The instruments were validated by three experts from the Faculty of Education, Abia State University, Uturu, and reliability coefficients of 0.84 for the EPT and 0.85 for the CAT were obtained using split-half and test-retest methods with Spearman-Brown correction. The experimental group was taught using the flipped classroom model, while the control group received instruction through the expository teaching method for six weeks. Mean and standard deviation were used to answer the research questions, while Analysis of Covariance (ANCOVA) was employed to test the hypotheses at the 0.05 level of significance. The findings revealed that students taught using the flipped classroom model achieved significantly higher academic performance than those taught using the expository method. The results also showed no significant difference in the academic performance of male and female students exposed to the flipped classroom approach. The study concluded that the flipped classroom model is an effective and inclusive instructional strategy for improving students' achievement in English Language. It was recommended that teachers adopt flipped learning strategies and that schools provide adequate ICT facilities and training to support effective implementation.

Keywords: Mastery learning Strategy, flipped model academic performance, English Language, secondary school students, ICT, expository method.

Introduction

Education as a holistic process is a key tool in developing human potentials. It serves as an instrument for national development. John Dewey defines education as "Life itself" not just a preparation for life. (Rommel, 2023). Summarizingly, different scholars view education as a deliberate and systematic process through which knowledge, values, attitudes and skills are transmitted to learners to enable them function effectively (Ganiyafu & Mortals, 2023).

This study considers the secondary school level as a crucial period because it is the foundation for higher education having gone through the first level of the senior secondary school curriculum. It serves as a transitional stage between the primary and the tertiary education and breeding ground for further professionals (Nanbak, 2020).

Mastery learning Strategy (MLS) refers to a category of instructional methods which establish a level of achievement that all students must master before moving on to the next unit. The focus is on the role of feedback in learning (Kaheem, 2008). It is a set of groups-based or individualized teaching and learning strategies anchored on the premise that students will achieve a high level of understanding in a given domain if they are given enough time (Block, 2009). It utilizes differentiated and individualized instruction, progress monitoring formative assessment and most importantly, feedback corrective procedure and instructional alignment to minimize achievement gaps (Dembele 2005).

Drawing from the principles of effective tutoring practices and learning strategies, mastery learning uses feedback, corrective procedure and classroom assessment to inform instruction. Rather than focusing on changing content, this strategy endeavors to improve the process of mastering it (Filgonna, Filgona and Linus, 2017)

Teachers in the mastery learning classroom follow a scope and sequence of concepts and skills in instructional units. After an initial instruction, teachers administer a brief formative assessment based on the unit's learning goals. The assessment gives students information or feedback which helps identify what they have learned well to that point (diagnostic) and which they need to learn better (prescriptive). Students who have learnt the concepts continue their learning experiences and enrichment activities such as special projects, academic games or problem solving tasks. Those who have not learnt or mastered the concepts go through

corrective procedures until the concepts are mastered. The feedback and corrective activities offer guidance and direction on how to remedy their learning challenges. (Smith and Frank, 2017).

Flipped classroom is a pedagogical model that tends to reverse the conventional classroom mode of instruction by delivering lectures online, videos for students to review at home before class (Dominguez, 2020). The classroom lesson period is thus used in discussions, active learning, collaborative projects and problem-solving. Key principles of the flipped classroom include:

- Pre-class activities
- In class – activities
- Post-class activities

This method allows students to learn at their own pace, flexibility and factors student-centered learning increasing engagement and peer collaboration.

Language is the primary medium through which education is delivered, making proficiency in language essential for academic success. In Nigeria, English language occupies a unique position as the official language and the language of instruction at all levels of formal education (Mishina & Iskandar, 2019). It is also a core subject required for admission into tertiary institutions, making students' performance in English language a critical determinant of their educational progression. English language learning involves not only knowledge of grammar and vocabulary but also the development of listening, speaking, reading, and writing skills necessary for effective communication (Njoku, 2017). Despite its importance, students' academic performance in English language in many Nigerian secondary schools remains a concern, often attributed to factors such as teaching methods, cognitive ability, motivation, and socio-cultural influences.

Academic performance refers to the extent to which students achieve intended educational outcomes, typically measured through examination scores, grades, and other assessment indicators (York, Gibson, & Rankin, 2015). It is influenced by a complex interplay of cognitive, psychological, and environmental factors, including students' intellectual abilities, learning strategies, motivation, and classroom experiences. Research has also highlighted the potential influence of gender on academic outcomes, given socio-cultural expectations and differences in learning patterns between male and female students (Adigun et al., 2015). Consequently, identifying effective instructional strategies capable of improving students' academic performance in English language remains a priority for educators and policymakers.

Some studies have investigated the effectiveness of mastery learning in facilitating students learning in some school subjects. Lubna and Arshad (2017) investigated the effect of mastery learning on student achievement retention in secondary school mathematics in Pakistan. The results using mastery learning approach performed significantly better both in the achievement and retention test that followed the experimental; treatment.

Similar results were obtained by Filagona and Sababa (2017) who investigated the effectiveness of the MLS in the study of various subjects. A study by Mayanchi, Anya and Kainuwa (2017) on the effects of MLS and problem solving methods of teaching on students' achievement in mathematics in Zamfara State of Nigeria concluded that the experimental group (the MLS and problem solving group) performed significantly better than the control group taught using traditional expository method. Similar results were obtained in the studies by Remjai, Martin and Romio (2019) Guskey (2007) and Wambagu and Changeiwo (2008) when they concluded that mastery learning approach and self-regulated learning strategy increase student's academic achievement and achievement across their learning abilities towards the subject of biology. Studies by Harold and Sebastin (2018) Jegede, Alaiyemola and Okebukola (2009) both lent support to the effectiveness of the MLS as an instructional strategy and therefore the authors advise our teachers to adopt the strategy in their classrooms.

The expository / traditional / conventional methods are the teacher centered patterns whereby in the classroom, the teacher doubles up as the sole owner of the space and his students are left with the duty of listening while being quiet. This mode of teaching schedules time for teaching and learning. Eric-Mawauenyega and Otabuko (2017) raise the question as to whether learning must necessarily take place in that scheduled time given that students, as individuals, might have their individual differences and capabilities as well as learning patterns.

The expository method which is synonymous with the traditional or conventional method adopts the lecture approach and a bit of discussion, while the problem solving element is presented by and/ or discussed with the instructor. The syllabus, the teaching materials and the students assignments are determined by the tutor and transmitted to the students in various lessons/lectures (Cottel and Mills, 2003). This scenario could limit the abilities of learners to learn effectively if their characteristics such as age, social background, and abilities and so on cannot be used in determining what they are being taught.

This traditional approach involves the direct flow of information from teacher as sage to students as receptacle. The effectiveness of that transmission is tested by posing various exercises to the students. The students in most cases are given take-home assignments. Some still return the next day with the hope of copying

other peoples'/students' work, as such inhibiting the teaching and learning process. (Dereck 2006). This scenario makes it appropriate that problem-based techniques are employed by schools and teachers if really they want learning to occur. Kayode (2014) observes that the expository teaching approach could hinder successful impartation of knowledge because students are restricted from active participation in the teaching-learning process unless the teacher permits them to do so. In most cases the students' task is to copy the teachers' notes which activity does not guarantee effective learning.

Expository methods (Chalk and talk) rely mainly on textbooks while the modern methods rely on hands-on materials approach. The traditional methods display materials in part and try to explain as a whole whereas the reverse is the case with the modern approaches Mapeso (2017) asserts that though the expository method has long been used in teaching and learning situations, however, it is no longer effective enough to address the students' needs and interests as they do not have the opportunities to collaborate.

Despite growing evidence supporting the effectiveness of flipped classroom instruction, most existing studies have focused on subjects such as science, methodology, or higher education contexts, with limited attention to English language learning at the secondary school level in Abia State. Given the central role of English language in students' academic progression and national development, investigating innovative instructional strategies that can enhance performance in this subject is imperative. This study, therefore, examines the effect of the flipped classroom model on the academic performance of secondary school students in English language in Abia State, South-East Nigeria.

Statement of the Problem

1.1 The Problem

English language remains about the most important subject in the Nigerian school curriculum because all school subjects, including the local languages are taught in English. The West African Examination Council and other Examination Bodies expect a candidate to possess a credit-level pass along in with four other subjects before the person is certifies to have passed the examination satisfactorily. In fact, if a candidate fails to score a credit level pass in English language, the person cannot be admitted into any Nigerian university for an undergraduate or postgraduate programme in any discipline including local languages. Yet English language and mathematics are two subjects in which the worst performances are recorded in the external examinations in Nigeria.

Research efforts should therefore continue to be made to find ways of improving Nigerian students' performances in English language. This study addresses the issue and seeks to answer the question. Will the use of mastery learning strategy enhance students' academic achievement and retention in secondary school English language?

1.2 Purpose of the Study

The study sought to compare and determine the effectiveness of the mastery learning strategy in improving the academic achievement and retention in senior secondary school English language in Abia State Nigeria. More specifically, the study sought to:

Establish the difference in students' achievement in English language when taught using mastery learning strategy as against the flipped classroom model.

Ascertain the difference in students' retention ability in English language when taught using the mastery learning strategy as against the flipped classroom model; and

Ascertain the difference in students' achievement in English language when taught using mastery learning strategy or the flipped model classroom based on gender.

1.3 Research Questions

The following research questions were posed to guide the study.

1. What difference exists in students' achievement in English language when taught using mastery learning strategy as against the expository method?
2. What difference exists in male and female students' achievement in English language when taught using the flipped learning method?

1.4 Hypotheses

The following null hypotheses were formulated to guide the study:

1. There will be no significant difference in the academic performance of the experimental group taught using the mastery learning strategy, and the control group taught using expository method as measured by their mean achievement test scores.

2. There will be no significant difference in the academic achievement of male and female students taught using the mastery learning strategy as measured by their mean achievement test scores.

Methodology

This section presents the methodology employed in conducting the study.

The study adopted a quasi-experimental pretest–posttest control group design to determine the effect of the flipped classroom model on students’ academic performance in English Language. This design was considered appropriate because it enabled the researcher to compare the performance of students exposed to the flipped classroom approach with those taught using the mastery learning method without full randomization of subjects. Two intact classes were used: one served as the experimental group and received instruction through the flipped classroom model, while the other served as the control group and was taught using the mastery method. Both groups were pretested before the intervention and post-tested after the treatment. The independent variable was the flipped classroom model, while the dependent variable was students’ academic performance in English Language. Cognitive ability and gender were treated as moderating variables. The study was conducted in Abia State, located in the South-East geopolitical zone of Nigeria. The state comprises urban and rural communities and operates a structured secondary school system across seventeen local government areas. Abia State was selected due to persistent concerns about students’ performance in English Language, which is a core subject and the medium of instruction at the secondary school level. The population of the study consisted of 14,623 Senior Secondary School II (SS II) students enrolled in public secondary schools in Abia State during the 2022/2023 academic session. SS II students were considered suitable because they have sufficient exposure to the English Language curriculum and are preparing for external examinations. A purposive sampling technique was used to select one co-educational secondary school that met specific criteria, including the availability of qualified English Language teachers and adequate ICT facilities. Two intact SS II classes from the selected school were used for the study, yielding a sample size of 96 students (51 males and 45 females). One class was assigned as the experimental group (44 students) and the other as the control group (52 students). Data were collected using researcher-developed instruments: the English Language Performance Test (ELPT), the Cognitive Ability Test (CAT), and the Flipped Classroom Instructional Package in English (FCIPE). The ELPT comprised 50 multiple-choice items covering selected English Language topics such as nouns, pronouns, verb forms, active and passive voice, and stress patterns. It served as both the pretest and posttest (with items rearranged for the posttest). The CAT consisted of 20 multiple-choice items used to classify students into levels of cognitive ability before treatment. The FCIPE, developed using the ADDIE instructional design model, provided structured pre-class materials and in-class activities for the experimental group over six weeks. The instruments were validated by three experts, two in Curriculum and Instruction and one in Measurement and Evaluation, from the Faculty of Education, Abia State University, Uturu. Their reviews ensured clarity, relevance, and adequate coverage of the content areas. Reliability was established through pilot testing on students outside the study sample. Using split-half and test–retest procedures with Spearman–Brown correction, reliability coefficients of 0.84 for the ELPT and 0.85 for the CAT were obtained, indicating that the instruments were sufficiently reliable for the study. The experiment was conducted in three phases: pre-treatment, treatment, and post-treatment. During the pre-treatment phase, the ELPT and CAT were administered to both groups. The treatment phase lasted six weeks, during which the experimental group received instruction through the flipped classroom model, while the control group was taught using the expository method during normal school periods. In the post-treatment phase, the reshuffled ELPT was administered as a posttest to measure students’ academic performance. Data collected were analyzed using the Statistical Package for the Social Sciences (SPSS). Mean and standard deviation were used to answer the research questions, while Analysis of Covariance (ANCOVA) was employed to test the hypotheses at the 0.05 level of significance, with pretest scores serving as covariates to control for initial group differences.

Results

The result is presented based on the research questions.

1. Research Question One:

What difference exists in students’ achievement in English language when taught using mastery learning strategy as against the flipped classroom model?

The result is presented in Table 4.1;

Table 1: Mean and Standard Deviation of Pre and Post-Test Performance between Mastery learning strategy and Expository Teaching Methods

Groups	N	Pretest		Post-test		Mean Gain	Mean Diff
		\bar{x}	SD	\bar{x}	SD		
Experimental Group	44	52.64	8.581	68.73	11.224	16.09	8.9
Control Group	52	45.50	7.429	52.69	11.953	7.19	
Total	96						

Information in Table 1 shows the mean and standard deviation of the difference in academic performance between secondary school students II taught the English language using a flipped model classroom and those taught using the expository teaching method. The table indicates the means of 52.64 and 68.73 for the experimental group, with respective standard deviations of 8.581 and 11.224. The table further shows the pretest and post-test mean scores of 45.50 and 52.69 for the control group, with respective standard deviations of 7.429 and 11.953. With a mean gain of 16.09 for the experimental group and 7.19 for the control group and a mean difference of 8.9 in favour of the experimental group. This shows that there was improvement in the post-test scores of the two groups, but the experimental group was higher. Indicating that the use of the flipped model classroom improves the performance of students more than the mastery method.

2. Research Question Two

What difference exists in male and female students' achievement in English language when taught using the mastery learning strategy?

The result is presented in Table 2.

Table 2: Mean and Standard Deviation of Male and Female Students taught the English Language using the mastery learning strategy against the expository teaching method.

Group	Gender	N	Pretest		Post-test		Mean gain	Mean Diff.
			\bar{x}	SD	\bar{x}	SD		
Experimental (Flipped Classroom)	Male	24	51.33	9.774	67.67	11.672	16.34	0.54
	Female	20	54.20	6.802	70.00	10.819	15.8	
		44						

The result of the analysis in Table 2 shows the means of 51.33 and 67.67 with respective standard deviations of 9.774 and 11.672 for the male students in the experimental group and means of 54.20 and 70.00 with their respective standard deviations of 6.802 and 10.819 for the female students taught English language using the flipped model classroom and mean gain of 16.34 for male and 1.80 for female with mean difference of 0.54 difference in favour of the male students. This is an indication that both categories performed well, with slightly better performance for males than females.

Hypothesis One

1. There will be no significant difference in the academic performance of the experimental group taught using the mastery learning strategy, and the control group taught using expository method as measured by their mean achievement test scores.

The result is presented in Table 3.

Table 3: Summary of Analysis of Covariance (ANCOVA) of Academic Performance of Students English Language using the Flipped Model Classroom and Expository Teaching Method

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	10575.514 ^a	2	5287.757	59.562	.000
Intercept	819.494	1	819.494	9.231	.003
Pretest	4447.484	1	4447.484	50.097	.000
Groups	1934.475	1	1934.475	21.790	.000
Error	8256.320	93	88.778		
Total	364912.000	96			
Corrected Total	18831.833	95			

a. R Squared = .562 (Adjusted R Squared = .552)

Table 3 shows the summary of the analysis of covariance (ANCOVA) which assumed that there is no significant difference in academic performance of secondary school II students taught the English language using flipped model classroom and those taught using expository teaching method. The result shows f-value of 21.790 and p-value of 0.000 at 0.05 significance level. Since the p-value is less than 0.05 ($p < 0.05$), the hypothesis was rejected and an alternate is therefore established thus; There is a significant difference in academic performance of secondary school II students taught the English language using flipped model classroom and those taught using expository teaching method.

Hypothesis Two

1. There will be no significant difference in the academic achievement of male and female students taught using the mastery learning strategy as measured by their mean achievement test scores.

The result is presented in Table 4.

Table 4: Summary of ANCOVA of Male and Female Students taught English Language using Flipped Model Classroom

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	3494.050 ^a	2	1747.025	37.254	.000
Intercept	184.374	1	184.374	3.932	.054
Pretest	3434.656	1	3434.656	73.242	.000
Gender	5.129	1	5.129	.109	.743
Error	1922.677	41	46.895		
Total	213248.000	44			
Corrected Total	5416.727	43			

a. R Squared = .645 (Adjusted R Squared = .628)

Table 4 shows the summary of the analysis of covariance (ANCOVA) which assumes that there is no significant difference in academic performance of male and female secondary school II students taught English language using the flipped classroom model. The result shows an f-value of .109 and a p-value of 0.743 at a 0.05 level of significance. Since the p-value is greater than 0.05 ($p > 0.05$), the hypothesis was accepted. Therefore, there is no significant difference in academic performance of male and female secondary school II students taught the English language using the flipped classroom model.

Discussion of Findings

The findings from research question one revealed that secondary school II students taught English Language using the mastery learning performed better academically than those taught using the expository teaching method. The experimental group recorded a higher mean gain score than the control group, indicating that the mastery learning classroom approach enhanced students' learning outcomes more effectively than the conventional method. The test of hypothesis one was rejected, showing that there is a significant difference in academic performance between students taught using the mastery learning and those taught using the expository method. This implies that the mastery learning has a substantial positive effect on students' academic performance in English Language. The finding may be attributed to the active learning opportunities, increased engagement, and individualized pacing provided by the flipped approach, which enable students to interact more deeply with instructional content before and during class.

This finding is consistent with the study of Alsancak-Sirakaya and Özdemir (2018), who reported that students exposed to the mastery learning achieved significantly higher academic performance and motivation than those taught through traditional methods. Similarly, van Vliet, Winnips, and Brouwer (2015) found that flipped instruction enhanced students' cognitive engagement, critical thinking, and learning strategies. In the Nigerian context, Etukakpan and Maduka (2022) also reported improved academic achievement among secondary school students taught using a mastery learning hybrid model. These studies corroborate the present finding by demonstrating that student-centred instructional approaches such as mastery learning promote deeper understanding and improved academic outcomes compared with teacher-centred methods.

The finding from research question two indicated that both male and female students taught English Language using the flipped classroom model showed substantial improvement in academic performance, with males performing slightly higher than females. However, the test of hypothesis four revealed that this difference was not statistically significant, indicating that gender does not significantly influence students' achievement when taught using the flipped classroom approach. This suggests that the flipped classroom model provides equitable learning opportunities for both male and female students, enabling them to benefit similarly from the instructional strategy. This finding aligns with the study by Ikwuka and Okoye (2021), who found that both male

and female students improved academically when exposed to mastery learning instruction, with no significant gender difference in achievement. The result also aligns with the view that technology-supported and student-centred learning environments can reduce traditional gender disparities by allowing learners to progress at their own pace and participate actively in collaborative tasks. The implication is that the flipped classroom model can serve as an inclusive instructional strategy that enhances English Language learning outcomes, irrespective of gender.

Conclusions

Based on the findings of this study, it can be concluded that the flipped classroom model has a significant positive effect on the academic performance of secondary school students in English Language in Abia State. The study established that students taught using the flipped classroom model approach achieved higher performance than those taught using the conventional expository teaching method. This indicates that the mastery learning enhances students' engagement, understanding, and application of English Language concepts by allowing them to access instructional content prior to class and participate in interactive learning activities during class time.

The study further revealed that both male and female students benefited from the flipped classroom model, with no significant difference in their academic performance. This suggests that the effectiveness of the flipped approach is not dependent on gender and that it provides equitable learning opportunities for all students. Consequently, the flipped learning model can be considered an inclusive teaching strategy capable of improving English Language achievement among diverse groups of learners.

Recommendations

1. English Language teachers should adopt the mastery learning model as an alternative to traditional lecture-based methods to enhance students' engagement, participation, and academic performance.
2. Schools and educational authorities should provide adequate ICT facilities, training, and technical support to enable both male and female teachers effectively implement mastery learning strategies in the classroom.

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