



Ignatius Ajuru University of Education, Port Harcourt, Nigeria
Research and Development Centre

1st International Conference and Exhibition on Research, Innovation and Development (ICERID 2026)
Proceedings URL: <https://iauejournals.com/index.php/ICERID> Website: <https://icerid.online>



ISBN: 978-978-63205-1-9

June 2026; Page No. 45-52

Flipped Classroom Learning Strategy and Academic Performance of Senior Secondary School Students in Writing Skills in Port Harcourt Metropolis

*¹Nwafor, C., & ²Obi, M. H.

¹Department of Curriculum Studies and Instructional Technology, Ignatius Ajuru University of Education, Port Harcourt, Nigeria.

²Department of Curriculum Studies and Educational Technology, University of Port Harcourt, Nigeria.

*Corresponding author email: christian.nwafor@iaue.edu.ng

Abstract

This study examines the flipped classroom learning strategy and senior secondary school students' academic performance in writing skills in Port Harcourt Metropolis, Rivers State. Two objectives, two research questions, and two hypotheses will guide the study. The study will adopt a quasi-experimental research design. The population consisted of nine thousand two hundred and one (9,201) SS2 students. A sample size of eight hundred (800) students was used from Port Harcourt Metropolis. The instrument used for data collection was the English Language Performance Writing Test (ELPWT). The reliability of the instrument was established by the test-retest method, and the scores were correlated using Pearson Product Moment Correlation, and a coefficient of 0.76 was obtained. Descriptive statistics, mean, and standard deviation were used to analyze the research questions, while Analysis of Covariance (ANCOVA) was used to test the hypotheses at the 0.05 level of significance. The results showed that the flipped classroom model of blended learning had a greater positive effect on students' English language writing skills during the posttest stage compared to the pretest stage. Additionally, there is a significant difference in the posttest scores between male and female students in the flipped classroom model of blended learning compared to those in the conventional method. Therefore, positive concentration and interest in English language classes had a greater impact on the performance of female students than on that of male students. The study concluded that the flipped classroom learning strategy leads to academic performance, as it encourages students' engagement and boosts collaboration and critical thinking ability in English language writing skills. The recommendation is for the Ministry of Education to provide free computers and other electronic devices, as these tools improve students' study skills and academic performance; additionally, new technologies and innovations should be promoted in secondary schools to meet our educational needs.

Keywords: Flipped Classroom, Learning Strategy, Academic Performance, Senior Secondary School, Students

Introduction

Basically, there are four skills involved in language acquisition, which are listening, speaking, reading, and writing. Writing is an important and difficult skill in English language acquisition. It is a skill that requires diligent and constant practice to acquire. Its importance and difficulty are due to its reinforcement of grammatical structures and vocabulary that educators strive to teach their students. The knowledge of grammar, punctuation, sentence structure, and vocabulary is very essential to writing clearly. Azikiwe in Nwafor (2021) asserted that writing is a complex process with several operations going on simultaneously. As a complex process, it requires time, cognitive ability, and diligent practice to achieve. English language writing skills promote the development of language use through classroom activities, which lend themselves to the promotion of social interaction among peers. The various aspects of English

language writing skills, such as grammar, vocabulary, punctuation, and spelling, help improve cohesion, understanding, and the effortless flow of thought and reduce ambiguities associated with writing. In general, the various aspects of English language writing skills enhance performance and make students or learners proficient writers.

Writing is a skill of output. It is one of the four basic language skills and the hardest to master. This is due to its strict adherence to rules of grammar, punctuation, spelling, organisation, content, and expression (Cao, 2015). Writing is an intellectual activity that involves finding ideas and thinking of ways to express and arrange them into statements and paragraphs that are clear to the audience or readers. Writing demands intellectual effort and cognitive ability, as it involves generating ideas, planning, goal setting, monitoring, evaluating, and expressing exact meanings. Thus, Azikiwe (2013) asserts that "since writing is a way of communicating with others, sharing ideas, educating, and entertaining an audience, there is a need for the writer to ensure that he or she has written exactly what he or she intends to communicate to the readers for an effortless flow of communication" (Pham, 2016; Keats, 2010).

Writing is a productive skill that expresses feelings through written communication. Furthermore, writing is a craft, and like all crafts, it needs constant and diligent practice to master. Obi-Okoye (2004) considers writing to be "meaning made permanent in language." In other words, with writing, one organises one's knowledge and beliefs into convincing arguments and conveys meaning through well-constructed texts. There are many definitions of writing; no wonder Fischer (2010) asserts that "no one definition of writing can cover all the writing systems that exist and have ever existed." He further stresses that "A complete writing system should have as its purpose communication." The writing process involves a series of steps to follow in producing a finished product. By focusing on the process of writing, everyone learns how to write successfully. Breaking down the mystery and difficulty of writing into step-by-step instructions removes or reduces the associated challenges by breaking down writing step by step. Meanwhile, the writing process emphasises the processes writers use of in writing (such as planning, drafting, and revising), which seeks to improve students' writing skills through developing their use of effective composing processes.

The writing process focuses on helping students explore a topic through brainstorming, researching, and writing, followed by sharing drafts with teachers. The writing process allows students/learners to write elegantly through the dynamic, interactive and recursive stages of pre-writing, drafting and post-writing/evaluation. It's dynamic and recursive because the writer can gather more information and draft while editing. The writing process requires classroom activities which promote social interaction among students, activities that boost the improvement of language use and classroom activities that allow learners to express themselves better.

The flipped classroom model is a rotation model in which students rotate on a fixed schedule between online delivery of content and instruction, generally outside of the classroom, and face-to-face teacher-guided practice (or projects) generally in a classroom setting (Christensen, Horn & Staker, 2013). The flipped classroom is one of the most recent learning models that focuses on content attainment. In the flipped classroom model, the instructor shifts the focus of content attainment. by the instructor. The term 'flipped classroom' was first put forward by Bergmann and Sam. Bergmann and Sam in Colorado pioneered flipped classrooms using screen casting and video podcasting to deliver the learning content of science courses in high schools.

Blended learning: Different authors and skills have defined blended learning in various ways, and new definitions are evolving. Blended learning: Different authors define blended learning in various ways, and new definitions continuously evolve. Different authors define blended learning in various ways, and new definitions are continuously evolving. Friesen and Norm (2012) define blended learning as a "formal education programme in which a student learns at least in part through delivery of content and instruction via digital and online media with some element of student control over time, place, path or pace". Muthuchamy and Thiyagu (2011) describe blended learning as the integrated combination of traditional learning with web-based online approaches. They described blended learning as the combination of offline and online forms of learning, where online learning occurs over the internet, intranet, computers, and other software packages, while offline learning takes place in traditional classrooms. Offline and online forms of learning include online learning, which occurs over the internet, intranet, computers, and other

software packages, as well as offline learning, which takes place in traditional classrooms where students and teachers meet face-to-face to engage in learning activities.

Blended learning: Different authors and skills have defined blended learning in various ways, and new definitions are evolving. Blended learning: Different authors define blended learning in various ways, and new definitions are continuously evolving. Different authors define blended learning in various ways, and new definitions are continuously evolving. Friesen and Norm (2012) define blended learning as a “formal education programme in which a student learns at least in part through delivery of content and instruction via digital and online media with some element of student control over time, place, path or pace”. Muthuchamy and Thiyagu (2011) describe blended learning as the integrated combination of traditional learning with web-based online approaches. They described blended learning as the combination of offline and online forms of learning, where online learning occurs over the internet, intranet, computers, and other software packages, while offline learning takes place in traditional classrooms. Offline and online forms of learning include online learning, which occurs over the internet, intranet, computers, and other software packages, as well as offline learning, which takes place in traditional classrooms where students and teachers meet face-to-face to engage in learning activities.

Blended learning is described by Thorne as "a way of meeting the challenges of tailoring learning and development to the needs of individuals by integrating the innovative and technological advances offered by online learning with the interaction and participation offered in the best of traditional learning." Blended learning is a ‘formal programme in which a student learns’: at least in part through an online learning place, path or pace; at least in part in a supervised brick-and-mortar location away from home; and the modalities along each student’s learning path within a course or subject are connected to provide an integrated learning experience’ (Christensen, 2015). It is the learning styles that effectively combine different methods of teaching to achieve the desired outcome. Students in a traditional class: In a traditional class, teachers can assign online tasks that take into account the subject matter, instructional objectives, and the individual characteristics and differences of students. Online assignments should consider the subject matter, instructional objectives, and the individual characteristics and differences of students. However, challenges may affect the use of the flipped classroom learning strategy, such as poor electricity supply, lack of data, and limited access to Android phones. However, blended learning was necessitated because all instruction may not be achieved in a traditional classroom and technological environment.

Students’ poor writing skills are a serious problem, as most students prefer chatting on their phones to learning to write, which has affected their performance in English language examinations. Hence, the WAEC results from 2020 to 2025 demonstrate both progress and setbacks in Nigeria’s education sector. The declines in 2022 and 2024 emphasise the necessity of continuous monitoring and targeted interventions to ensure sustained progress. As the number of students participating in WASSCE continues to grow, maintaining consistent quality in education across all regions is crucial. Between 2020 and 2025, the percentage of candidates achieving credit passes in English alongside three other subjects fluctuated significantly in Nigeria. The pass rate peaked in 2021 at 81.7% but hit a notable low in 2025, recording a revised pass rate of 62.96%. In the 2025 West African Senior School Certificate Examination (WASSCE) in Nigeria, only 38.32% of candidates obtained at least five credits in English Language (WAEC Result, 2025). There is a paradigm shift from the conventional teaching method to the innovative teaching method. Hence, English language teachers have reverted to the traditional teacher-centred method of teaching, among other reasons (Tafani, 2010). The concern of this study was, therefore, to investigate the possibility of flipped classrooms to enhance the performance of senior secondary school students' writing skills in the English language in Rivers State.

This study aimed to examine the flipped classroom learning strategy and senior secondary students’ performance in writing skills in English language in Rivers State. Specifically, the objectives of this study are to:

- i) examine the difference in the mean scores of students taught with the flipped classroom learning strategy and those taught with the conventional teacher-centred method based on students’ use of spelling.
- ii) determine the difference in the mean scores of students taught with the flipped classroom learning strategy and those taught with the conventional teacher-centred method based on students’ use of vocabulary.

The following research questions were drawn to guide this study:

- i) What is the difference in the mean scores of students taught with the flipped classroom learning strategy and those taught with the conventional teacher-centred method based on students' use of spelling?
- ii) What is the difference in the mean scores of students taught with the flipped classroom learning strategy and those taught with the conventional teacher-centred method based on students' use of vocabulary?

The following null hypotheses guided the study:

- H0₁. There is no significant difference between the mean scores of students taught with the flipped classroom learning strategy and those taught with the conventional teacher-centred method in terms of students' use of spelling.
- H0₂. There is no significant difference in the mean scores of students taught with the flipped classroom learning strategy and those taught with the conventional teacher-centred method based on students' use of vocabulary.

Methodology

The study adopted a quasi-experimental design. The study population consisted of all senior secondary school students in Port Harcourt Metropolis. The population consisted of nine thousand two hundred and one (9,201) SS2 students. The study used a sample of eight hundred (800) students from Port Harcourt Metropolis. A simple random sampling technique was used to select eight (8) public schools in the area. The instrument for data collection was the English Language Performance Writing Test (ELPWT). ELPWT was constructed by the researcher, and it consisted of 20 items covering vocabulary and spelling. The instrument was assessed for both face and content validity by two experts in the area under review. The instrument was assessed for both face and content validity by two experts in the relevant field. The reliability coefficient of the English Language Performance Writing Test was determined with the test-retest technique. Pearson product-moment correlation was used, and a coefficient of 0.76 was obtained, which was considered suitable for the study. The English language teachers of the sampled schools were used to administer treatment to the students. Data gathered were analysed using descriptive statistics: mean and standard deviation for the research questions, while Analysis of Covariance (ANCOVA) was used to test the hypotheses at the 0.05 level of significance.

Results

Table 1: Mean and Standard Deviation of Pretest and Posttest Scores of Students in the Flipped Classroom Learning Strategy (Experimental Group) and Conventional Teacher-Centred Method Group in the use of Spelling

Group	No	Pre-test		Post-test		Mean gain
		Mean	SD	Mean	SD	
Flipped classroom	400	21.07	5.56	60.45	10.10	39.38
Conventional Teacher-Centred	400	21.05	5.55	36.43	7.54	15.38

Table 1 shows that, at the pretest stage, the mean scores and standard deviations for flipped classroom blended learning in spelling were 21.07 and 5.56, while for conventional teacher-centred learning they were 21.05 and 5.55, respectively. This indicates similar performance between the experimental and control groups. Meanwhile, at the posttest stage, the mean scores and standard deviations for the flipped classroom blended learning in spelling were 60.45 and 10.10, while the conventional group had mean scores of 36.43 and a standard deviation of 7.54, respectively. These results show a mean gain of 39.38 and 15.38 in the experimental and control groups, respectively. This indicates that the flipped classroom blended learning group performed better at the post-test stage than the conventional teacher-centred group, likely because the conventional group did not receive the same level of treatment as the experimental group.

Table 2: Mean and Standard Deviation of Pretest Posttest Scores of Students in Flipped Classroom Learning Strategy (Experimental) and Conventional Teacher-Centred Method Group in the use of Vocabulary

Group	No	Pre-test		Post-test		Mean gain
		Mean	SD	Mean	SD	
Flipped classroom	400	21.06	5.55	54.50	9.25	33.44
Conventional Teacher-Centred	400	21.04	5.55	35.10	7.25	14.06

Table 2 shows that, at the pretest stage, the mean scores and standard deviations for vocabulary use in the flipped classroom of blended learning (experimental group) were 21.06 and 5.55, respectively, while those for the conventional teacher-centred group were 21.04 and 5.55. This indicates that students in the two groups had comparable ability and performance at the pretest stage. At the posttest stage, the mean scores and standard deviations for the flipped classroom of blended learning (experimental group) were 54.50 and 9.25, respectively, while those for the conventional method (control group) were 35.10 and 7.25. This yields mean gains of 33.44 and 14.06 in the experimental and control groups, respectively. This indicates that the flipped classroom of blended learning group outperformed the conventional group in the experiment because of the intervention.

Table 3: ANCOVA Results of Pretest Posttest Scores of Students in Flipped Classroom Learning Strategy and Conventional Teacher-Centred Method in the use of Spelling

Source	Type III Sum of Squares	Df	Mean Square	F-value	p-value (Sig)	Decision
Corrected Model	2848.061	3	1424.031	14.036	.000	Significant
Intercept	16710.491	1	16710.491	164.706	.000	
Pretest	323.200	1	323.200	3.186	.087	
Spelling	1314.871	2	1314.871	53.260	.030	
Error	29117.952	796	101.456			
Total	448146.000	800				

Table 3 reveals an F-value of 53.260 and a p-value of 0.030, which is less than the chosen level of significance between 1 and 796 degrees of freedom. Therefore, we reject the null hypothesis. The data indicate a significant difference in pretest-posttest scores between students in the flipped classroom model of blended learning (the experimental group) and those taught with the conventional teacher-centred method (the control group) in spelling usage.

Table 4: ANCOVA Results of Pretest-Posttest Scores of Students in Flipped Classroom Learning Strategy and Conventional Teacher-Centred Method in the Use of Vocabulary.

Source	Type III Sum of Squares	Df	Mean Square	F-value	p-value (Sig)	Decision
Corrected Model	21762.882	3	7254.294	34.189	.000	Significant
Intercept	145243.835	1	145243.835	684.524	.000	
Pretest	1.421	1	1.421	.007	.635	
Vocabulary	21755.095	2	10877.548	45.855	.002	
Error	168897.038	796	212.182			
Total	2211514.000	800				

Table 4 reveals an F-value of 45.855 and a P-value of 0.002, which is less than ($<$) the chosen level of significance between 1 and 796 degrees of freedom. Therefore, the null hypothesis is rejected. This indicates that there is a significant difference in pretest-posttest scores of students in the flipped classroom model of blended learning (the experimental group) and the conventional teacher-centred method (the control group) regarding vocabulary usage.

Discussion.

Research question one, hypothesis one, revealed that the mean scores for the pretest of students in the flipped classroom learning strategy were 21.07, while those of the conventional teacher-centred group were 21.05. This shows equal abilities between the two groups at a pretest stage. However, the mean scores for the posttest of the flipped classroom learning strategy were 60.45, while the conventional group's were 36.43. This implies that the flipped model learning strategy has gained a mean difference of 39.38, while the conventional group also gained a mean difference of 15.38 after the post-test examination. This shows that students performed better in the post-test stage than in the pre-test stage, particularly those in the flipped classroom strategy for spelling. However, the differences in post-test scores between the experimental group and the conventional group were due to the treatment received by the experimental group, which led to improved performance in English language spelling. Again, the ANCOVA result reveals ($F = 53.260$, $P = 0.030 < 0.05$) the chosen level of significance between 1 and 796 degrees of freedom. Therefore, the null hypothesis is rejected, indicating that there is a significant difference in the pretest-posttest scores of students in the flipped classroom learning strategy and the conventional teacher-centred method.

This finding is in agreement with Brumen (2011), who found a difference in the pretest and posttest scores of the experimental group and the traditional method of their study. He noted that students perform very poorly in their writing exercises due to poor spelling abilities. Therefore, it is imperative for teachers to understand the techniques of spelling English words to help students overcome the problems they encounter with spelling. The use of audio and videos in flipped model learning enhances student performance compared to the conventional method. In flipped-model learning, the performance of students is enhanced compared to the conventional method.

Similarly, Tafani (2010) supported the flipped learning strategy, which enhances English language writing skills, creates a new and more powerful learning environment, and encourages creative and practical ideas for both teachers and students. It helps students to be actively involved in the learning process. He added that it is used by both teachers and students as a reference point to attain information and obtain new ideas, knowledge, skills and competences in the English language.

Research question two and hypothesis two revealed that the mean scores for the pretest of students in the flipped classroom learning strategy were 21.06, while those of the conventional teacher-centred group were 21.04. The data shows no difference in the performance of the two groups at a pretest stage. Meanwhile, the mean scores for the post-test of the flipped classroom learning strategy and the conventional method were 54.50 and 35.10. This implies that the experimental group has gained a mean difference of 33.44, while the control group also gained a mean difference of 14.06 after the posttest. The data show that students' performances yielded better results in the post-test stage than in the pre-test stage in favour of students in the flipped classroom learning strategy. However, the difference in post-test scores between the experimental group and the conventional group was due to the intervention in the experimental group, which led to improved performance in vocabulary usage.

Again, the ANCOVA result reveals ($F = 45.855$, $p = 0.000 < 0.05$) the chosen level of significance between 1 and 796 degrees of freedom. Therefore, the null hypothesis is rejected, which indicates that there is a significant difference in the pretest and posttest scores of students in the flipped classroom model of blended learning (experimental group) and the conventional method (control group). The result shows that students performed better in the experimental group than the control group because of the intervention at the post-test stage.

This finding is in consonance with the study of Azikiwe (2013), who found a difference in the pre-test and post-test scores of the flipped class learning strategy and the conventional group in their study. He supported that the flipped classroom model demands intellectual effort and cognitive ability, as it involves generating ideas; planning; goal setting; monitoring, evaluating, and expressing exact meaning in the use of vocabulary. He noted that blended learning

seems to have more achievement gains than the traditional face-to-face classes. Additionally, Faye and Andrea (2014) supported the study by noting that flipped blended learning encourages interaction and communication. This approach to learning maximises students' potential by providing support that allows them to feel safe, ask questions, and share ideas for further development. They also encouraged both teachers and students to embrace new technology to achieve greater positive outcomes. In the same vein, Ike, Iwu, and Onwuagboke (2015) supported the idea that learning should emphasise the central role of computer-based technology instruction in accommodating students' diverse learning styles. Learning styles effectively combine different teaching methods to achieve the desired outcomes in vocabulary usage. Consequently, the findings explain the significant difference observed in the pre-test and post-test results between the flipped classroom learning strategy and the traditional method used in the experiment.

Conclusion

Based on the findings, the study concluded that there is a significant difference in the pretest/posttest of the flipped classroom blended learning strategy and the conventional teacher-centred method; hence, the null hypothesis was rejected. The flipped classroom model leads to academic performance because it encourages students' engagement, boosts collaboration among students and improves critical thinking ability in English language writing skills. The flipped classroom learning strategy increases success and retention, as videos and other prerecorded materials can be rewatched, rewound or fast-forwarded outside class time. Time is set aside for students to work in groups to investigate and discuss the learning content in a normal classroom environment. It is an instructional approach that requires students to do home study on the learning content while the class time is set aside for students to work in groups to investigate and discuss the learning content with teachers serving as facilitators in the classroom. The flipped model offers greater performance gains than traditional face-to-face classes because it maximises students' potential and provides support by creating a safe environment where they can ask questions and share ideas for development. Flipped model learning enhances English language writing skills and generates new, encouraging, creative, and practical ideas for both teachers and students. It helps students to be actively involved in the learning process.

Recommendations

Based on the findings of the research, the following recommendations were made;

1. The Ministry of Education should share free computers and other electronic systems as it brings good results in students' studying abilities and academic performance.
2. New technologies and innovations should be encouraged in our secondary schools to meet our educational demand.

References

- Azikiwe, U. (2013). *Language teaching and learning*. Africana-First Publishers Limited.
- Brumen, M. (2011). The perception of and motivation for foreign language learning in pre-school. *Early Child Development and Care*, 181(6), 717–732.
- Cao, L. (2015). *Enhancing writing skills for second-year English majors through a Moodle-based blended writing course: Action research at the University of Foreign Languages*. University of Foreign Languages.
- Christensen, C., Horn, M., & Staker, H. (2013). *Is K–12 blended learning disruptive? An introduction to the theory of hybrids*. Clayton Christensen Institute. <https://www.christenseninstitute.org/publications/hybrids/>
- Faye, M. G. C., & Andrea, G. R. (2014). Blended learning and teaching writing: A teacher action research project. *Journal of Instructional Pedagogies*, 15.
- Friesen, N. (2012). *Defining blended learning*. <https://www.learningspace.org/papers/defining-blended>
- Ike, G. A., Iwu, A. O., & Onwuagboke, B. B. C. (2015). *Educational technology in a global world*. Cape Publishers.
- Keats, J. (2010). *Virtual worlds: Language on the edge of science and technology*. University Press.
- Muthuchamy, I., & Thiyagu, E. (2011). *Technology and teaching learning skills*. Kalpae Publications.
- Nwafor, C. (2021). *Cooperative and task-based learning strategy and academic performance of secondary school students in English language reading comprehension in Port Harcourt metropolis* [Unpublished thesis]. Ignatius Ajuru University of Education.
- Obi-Okoye, A. F. (2004). *Advanced English composition: The writing process approach*. GONAJ Books.
- Okoro, O. (2021). *The flipped classroom model of blended learning on senior secondary students' performance in*

English language writing skills in Rivers East senatorial zone of Rivers State [Unpublished thesis]. Ignatius Ajuru University of Education.

Pham, U. P. H. (2016). The effects of collaborative writing on individual writing. *Sai Gon University Journal of Science*, 14(39).