

Effectiveness of Flipped Classroom Method in Enhancing Students' Academic Achievement and Retention in Learning English at Tertiary Level

K. Muthumeenal

Ph.D. Research Scholar

Department of English and Foreign Languages

Alagappa University

Karaikudi, Tamil Nadu, India

meenaphdeng@gmail.com

Dr. S. Valliammai

Assistant Professor

Department of English and Foreign Languages

Alagappa University

Karaikudi, Tamil Nadu, India

Abstract

The present study explored the effectiveness of flipped classroom methods in the context of English learning outcomes at the tertiary level. The learning outcome of the study is to measure the academic achievement and retention level of the students. Moreover, the study verified the influence of moderate variable, such as gender, on this instructional method. Quasi-experimental research method and a parallel group design were adopted, with postgraduate students acting as the sample of the study. The study results clearly showed that flipped classroom methods favoured students' English learning outcomes, particularly in terms of

academic achievement and retention ability. Based on the findings of the study, the researchers also provided detailed recommendations.

Keywords: Flipped Classroom, Inverted Learning Approach, In-Class Activities, Out-of-Class Activities, Academic Achievement

Introduction

The universal educational context has rapidly transformed its dimensions in the past few decades. The rate of transformation was revealed highly after the neo-normal period of Covid-19. This global pandemic forced educators and students alike to adopt to new methods of teaching and learning, such as remote instruction and virtual classrooms as well as student centred pedagogy and asynchronous learning methods (Rashid & Yadav, 2020; Zhao & Watterston, 2021). As a result, the conventional classroom setting may never be the same again, as using technology has become the part and parcel of the educational experience. Moving forward, educators will need to continue to innovate and embrace new technologies to meet the demands of a swiftly changing the landscape of educational context.

Based on Indian Educational history, conventional teaching and learning methods (Face-to-face cum lecture) are well-liked and recognized approaches in Indian educational institutions which occupy face-to-face interactions between instructors and learners. In other words, instructor-led approaches were followed in the teaching methodologies. Moreover, it makes the role of instructors as information or knowledge distributors and students as warehouses clearer. Currently, conventional learning approaches do not meet all requirements for tech-savvy students, and blended learning methods represent a progressive solution evolution of the information society. Technology-Enabled Learning (TEL) plays a ubiquitous role effectively and efficiently in terms of students' academic achievement (Nirmala et al., 2022). The integration of technology in classrooms enhances students' learning experiences

by increasing sensory engagement and promoting interactive learning activities (Crittenden et al., 2018).

Blended Learning Environment

India's National Education Policy (NEP-2020) insisted that "While promoting digital learning and education, the importance of face-to-face, in-person learning is fully recognized. Accordingly, different effective models of blended learning will be identified for appropriate replication for different subjects" (NEP, 2020). Blended Learning (BL) is the effective way to study since it combines conventional face-to-face learning with flexible online learning. It can be done both synchronous and asynchronous modes of learning. According to Bliuc et al., (2007) defined BL as "learning activities that involve a systematic mixture of co-present (face-to-face) interactions and technically-mediated interactions between students, teachers, and learning resources". BL is the thoughtful fusion of both face-to-face and online learning experiences (Garrison & Vaughan, 2008).

Flipped Classroom Approach

The Flipped Classroom Approach is an innovative pedagogical strategy that redefines traditional methods of teaching and learning. In a typical classroom setting, students receive instruction during class time and then complete homework assignments independently outside of class. However, a flipped classroom inverts this model. Inverted classrooms allow instructors to cover more material, and students perform as well or better on comparable quizzes and exam questions compared to traditional lecture-style formats (Mason et al., 2013). The foremost and crucial characteristic of flipped classroom approach is that learners' study in advance online by viewing lectures and accessing resources carry out learning at out-of-class activities and collaborate with their peer learners in the flipped classroom methods under the instructors support at in-class activities.

Bloom's taxonomy explains the hierarchy of how our brain works when gathering information. The following figure 1 described what differences between the traditional and flipped learning models. Further, the figure demonstrates what happens in both learning methods. In the traditional learning method, students are supposed to acquire the higher function in Bloom's hierarchy by themselves they don't have anyone to help them if something is not comprehended however flipped learning method provides chances for students to discuss aroused questions in pre-class activity, additionally, students are placed in a question-answer environment where they ask questions not only a teacher but their classmates. In the Flipped Learning method, students learn and deepen their skills in applying, analyzing, evaluating, and creating. Subsequently, when students are focused on those skills, they enrich their problem-solving and critical skills (Allanazarova, M. A, 2021).

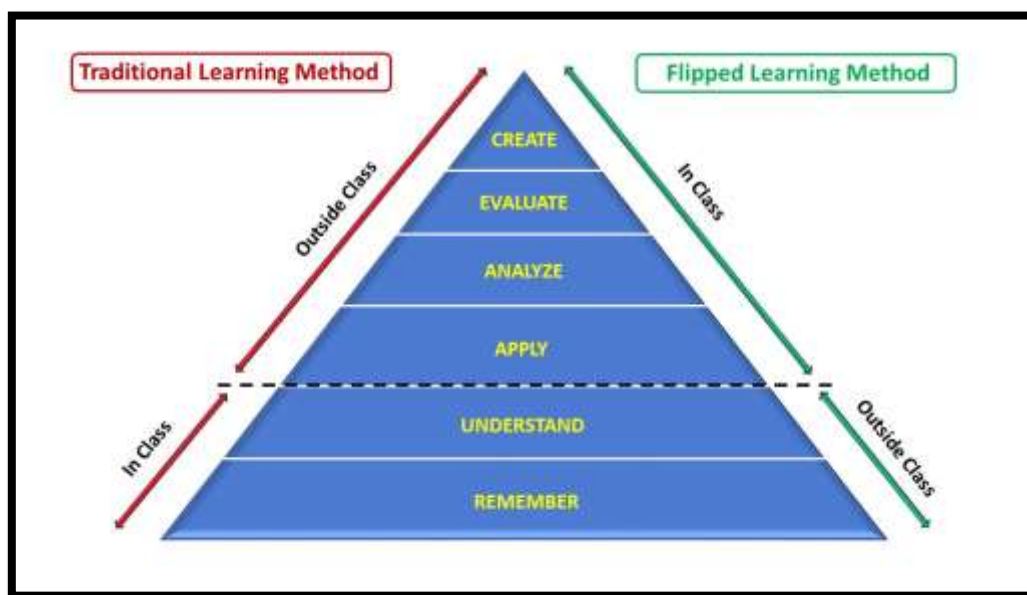


Figure 1: Application of Bloom's Taxonomy in Terms of Learning Methods Comparison

The highest advantage of providing the lecture in pre-recorded format is that students can review the videos several time. Having watched the videos at home, students become prepared to do some activities related to the videos in the classroom (Umutlu & Akpınar, 2016)

that's why in a flipped classroom approach student participate in class exercise more actively rather than in the traditional classroom (Uzunboylu & Karagozlu, 2017). The outcomes show that this approach gives a good impact on students' practical skills and comprehension (Dirgahayu, 2017).

Previous studies on Flipped Classroom and Academic Achievement

Over the past ten years, numerous studies have examined the impact of flipped classrooms on students' learning outcomes. A quasi-experimental study was conducted by Ibrahim and Haruna (2017) in the context of flipped classroom-based instructional effects. They found that the flipped classroom positively favoured the results, particularly the results showed that enhancement in academic achievement and retention ability of the students. To examine the effect of the flipped classroom approach in mathematics learning, another experimental research study was carried out by Makinde and Yusuf (2017). The study found that this innovative instructional approach enriched the students' performance in terms of academic achievement and retention ability irrespective of gender disparity.

A mixed-methods research study conducted by Kusuma (2020) concluded that the students had better speaking and self-regulated learning scores than those who were exposed to flipped classroom-based instruction. Another study (Gong et al., 2021) focused on the impact of flipped classroom-based instruction on college students' computational thinking skills. The study found that flipped classroom instruction effectively enhanced the students' creativity, cooperativity, algorithmic thinking, and critical thinking. A comparative study conducted by Riedl et al. (2021) showed that the flipped classroom approach was more effective than the traditional didactic methods and enriched the students' learning outcomes in terms of academic achievement. Moreover, final-year students exposed to the flipped classroom approach had a higher graduation rate than their counterparts. For English as a Foreign Language (EFL) learners, the flipped classroom approach helped students perform better in developing their

communication skills, which included vocabulary, grammar, coherence, practical use, and conversation (Li et al., 2022). Another study (Jantakoon, 2024) favoured the flipped classroom method, showing that this instructional approach significantly outperforms traditional teaching methods in improving overall English language proficiency, knowledge acquisition, and skill development.

While a substantial body of literature reports positive effects on students' academic achievement, engagement, and learning performance, some of empirical studies have documented limited or non-significant outcomes (Kim et al., 2014; Sun & Wu, 2016; Smallhorn, 2017; Cabi, 2018), indicating inconsistencies in its effectiveness. These divergent findings highlight the need for further empirical investigation to understand the contextual and pedagogical conditions under which the Flipped Classroom Method produces meaningful learning outcomes.

Despite its relevance in addressing 21-st century needs and contemporary educational challenges, comprehensive evidence regarding its impact on students' academic achievement remains inconclusive. Accordingly, this study aims to explore the effectiveness of the Flipped Classroom Method by addressing the following questions.

Research Questions

Based on the need and significance of the study, the research questions are framed hereunder.

RQ1: What is the effect of the Flipped Classroom Method on students' post-test achievement in English compared to the Traditional Lecture Method?

RQ2: What is the effect of Flipped Classroom Method on students' retention of learning in English Compared to the Traditional Lecture Method?

RQ3: Does gender moderate the effect of an instructional method on students' academic achievement in English?

Hypotheses:

The following hypotheses were formulated based on the above research questions.

H01: There is no significant effect between Flipped Classroom and Traditional Lecture Methods on students' post-test achievement in English.

H02: There is no significant effect between Flipped Classroom and Traditional Lecture Methods on students' retention of learning in English.

H03: Gender does not significantly moderate the effect of instructional method on students' academic achievement in English.

Methodology

Based on the nature and aim of the study, quasi-experimental research methodology and pre-test post-test parallel group (control and experimental groups) research design were adopted to examine the effectiveness of the instructional intervention and to analyse the resulting learning outcomes.

Sample and variables

The sample for the study was selected using a purposive sampling technique from students enrolled at Government Arts and Science College, located in Sivagangai District. The participants consisted of forty first-year postgraduate students, including both female and male students who acted as a sample of the study. Further, they were split into two groups: 20 students for the experimental group (10 female and 10 male) and 20 students for the control group (11 female and 09 male). Instructional methods such as the Flipped Classroom Method (FCM) and the Traditional Lecture Method (TLM) are the independent variable, while students' academic achievements including pre-test, post-test, and retention test are the dependent variable of the study. Also, students gender category is the moderating variable of the study.

Instruments and Implementation Procedures

To find out the answer for the research questions, appropriate instructional materials and assessment tools were developed, validated, and implemented as the crucial part of the study. The instructional content was drawn from selected units in the New Literatures course prescribed for the first-year postgraduate (MA) English programme. The selected units included Unit II: Fiction, which included “The Stone Angel” by Margaret Laurence and *Surfacing* by Margaret Atwood, and Unit IV: Prose, which comprised “A Room of One’s Own” by Virginia Woolf. Following the selection of the instructional units, the researcher developed Flipped Classroom Method-based instructional materials. These materials comprised content-based video lectures, PowerPoint presentations, and Open Educational Resources (OER) designed to assist independent learning prior to classroom face-to-face interaction. The developed e-content was reviewed by subject experts, experienced college teachers, and technical experts to get expert opinions regarding its clarity, relevance, and technical quality. Based on their opinions, necessary corrections were incorporated to enrich the usability and effectiveness of the instructional materials.

To measure the students’ academic achievement in English, the researcher developed an English achievement test. The initial version of the test consisted of 30 items, including multiple-choice question designed to assess students’ understanding of the selected course content. The preliminary draft of the test was pilot-tested on an exploratory sample and the coefficient of discrimination for the test ranged from 0.20 to 0.80 as well as the coefficient of difficulty ranged from 0.30 to 0.89 indicating acceptable item characterises. The internal consistency reliability value of 0.78, demonstrating acceptable reliability for the study. Based on the results of the item analysis and reliability testing, necessary revisions were made, the final version of the English achievement test consisted of 25 items.

In Implementation phase, the pre-test was administered to both the experimental and control groups at the beginning of the intervention to assess students' baseline knowledge and to ensure group equivalence. Subsequently, appropriate learning environments such as FCM was adopted for experimental group where as control group was exposed by TLM. The specific features of these learning environments are listed in the table 1.

Table 1: Strategies used in the Intervention Treatments

Group	Strategy used	In-Class activity	Out-of-class activity
Experimental	Flipped Classroom Method (FCM)	<ul style="list-style-type: none"> • Collaborative Learning Tasks • Group Discussions • Assignment Completion • Individual and Formative Assessment 	<ul style="list-style-type: none"> • Video lectures (OER - based) • Power point learning materials • E-content and reading materials
Control	Traditional Lecture Method (TLM)	<ul style="list-style-type: none"> • Teacher-Centred Lecture • Note taking • Question Answer session • Individual Assessment 	<ul style="list-style-type: none"> • Assignments • Practice exercise • Formative evaluation tasks

Following the completion of the interventional treatment, both the experimental and control groups were administered a post-test to measure students' learning outcomes. Subsequently, a retention test was conducted one month after the completion of the intervention to assess the extent to which students retained the learned content over time.

Statistical Treatment of Data

The data collected through achievement tests were analysed using appropriate descriptive and inferential statistical techniques to examine the effectiveness of the instructional intervention and test the hypotheses formulated. Descriptive statistics, comprising mean and standard deviation, were used to summarize students' academic achievement and retention performance. Inferential analyses, including an independent samples t-test, compared

the pre-, post-, and retention - tests scores of the experimental and control groups to examine the impact of the instructional method on academic achievement. All statistical analyses were conducted at the 0.05 level of significance.

Results:

Pre-test Analysis and Group Equivalence

To establish baseline equivalence between the experimental and control groups prior to the intervention, an independent sample t-test was conducted on students' pre-test achievement scores in English.

Table 2: Results of t-test scores of pre-test of experimental and control groups

Group	N	Mean	SD	df	T
Experimental	20	6.12	0.92	38	1.62
Control	20	6.56	0.95		

The results presented in Table 2 indicate that the experimental group ($M = 6.12$, $SD = 0.92$) and the control group ($M = 6.56$, $SD = 0.95$) did not differ statistically significant at the 0.05 level, indicating that there was no meaningful difference in students' performance between the two groups.

Testing of Hypothesis

(i) Effectiveness of the Flipped Classroom Method on Students' Academic Achievement

H01: There is no significant effect between Flipped Classroom and Traditional Lecture Methods on students' post-test achievement in English.

To test the above hypothesis, an independent sample t-test was conducted to compare the post-test scores of the experimental and control groups.

Table 3: The results of the t-test according the post-test scores of experimental and control groups

Group	N	Mean	SD	df	T
Experimental	20	13.84	1.31	38	8.24
Control	20	10.52	0.98		

The results presented in Table 3 show that the experimental group achieved a higher mean score ($M = 13.84$, $SD = 1.31$) compared to the control group ($M = 10.52$, $SD = 0.98$). The obtained t-value ($t = 8.24$) exceeded the critical value of 1.96 at the 0.05 level of significance, indicating a statistically significant difference between the two groups. Hence the above hypothesis H01 is rejected.

(ii) Effectiveness of the Flipped Classroom Method on Students' Retention ability

H02: There is no significant effect between Flipped Classroom and Traditional Lecture Methods on students' retention of learning in English.

To test the hypothesis 2, an independent sample t-test was performed to compare the retention test scores of the experimental and control groups.

Table 4: The results of the t-test according to the Retention test scores of experimental and control groups

Group	N	Mean	SD	df	T
Experimental	20	12.52	1.28	38	15.81
Control	20	7.32	0.96		

The results presented in Table 4 indicate that the experimental group obtained a higher mean score of 12.52 ($SD = 1.28$) compared to the control group mean score of 7.32 ($SD = 0.96$). The calculated t-value 15.81 is greater than the critical value (1.96) at the 0.05 level of significance, indicating a statistically significant effect between the two groups. Therefore, the above hypothesis H02 is rejected.

(iii) Influence of Gender on Students' Academic Achievement

H03: Gender does not significantly moderate the effect of instructional method on students' academic achievement in English.

To test the third hypothesis related to gender variable, t-test was conducted to compare the post-test scores of female and male students in the experimental group.

Table 5: The Results of the t-test according to the Post-test scores of the Experimental Group in Terms of Gender

Gender	N	Mean	SD	df	T
Female	10	13.6	1.33	9	0.8505
Male	10	13.2	1.29		

The results presented in Table 5 show that female students obtained a mean score of 13.6 (SD = 1.33), while male students obtained a mean score of 13.2 (SD = 1.29). The calculated t-value (0.8505) was not statistically significant at the 0.05 level of significance. Hence, the above null hypothesis is accepted.

Discussion

The study explored the effectiveness of the FCM in enhancing students' learning outcomes in learning English at the tertiary level. The results derived from Table 2 confirm that the pre-test scores of both the experimental and control groups were at the same level. Hence, the homogeneity or equivalence of the research samples was ensured before the study intervention. This ensuring process strengthens the internal validity of the current study. The same results are seen in the studies of Ibrahim and Haruna (2017), Selvakumar et al. (2020), and Nirmala et al., (2022). Moreover, the analysis of Table 3 revealed that post-test scores of experimental and control groups differ significantly. The experimental group students who were taught FCM performed better than the control group students who received instruction through TLM. It is confirmed that FCM is more effective than the TLM in the context of

English learning outcomes at the tertiary level. Similar results have been obtained in most studies, such as Elian and Hamaidi (2018), Kusuma (2020), Nasir (2020), Gong et al. (2021), Badmus (2021), and Riedl et al. (2021).

The findings from Table 4 conveyed that the retention test scores of the experimental and control groups significantly differ in their comparison. Therefore, it shows FCM enhances the long-term retention of learning English. This retention level among the experimental group students may be attributed to the active participation in the out-of-class activities and in-class activities. Studies by Ibrahim and Haruna (2017), Makinde and Yusuf (2017), and Selvakumar and Sivakumar (2019) support this finding. Therefore, FCM has higher retention than TLM in terms of English learning at the tertiary level. From Table 5, the analysis revealed that there is no significant difference in the post-test scores of the experimental group in terms of the moderate variable gender. The academic achievement levels of female and male students are similar. This suggests that the effectiveness of the FCM is consistent across the genders and affords equal learning opportunities for all students, thereby supporting the inclusive nature of technology-enhanced instructional approaches. The findings agreed with that of studies such as Makinde and Yusuf (2017), Elian and Hamaidi (2018), and Ezeudu and Gbendu (2020), confirming that a flipped classroom environment can effectively be used to eradicate gender disparity.

In conclusion, the results indicated that pre-test scores were equivalent between experimental and control groups, ensuring internal validity of the study. Post-test scores revealed that the experiment group, taught via FCM, outperformed the control group receiving TLM. Additionally, the experimental group showed significantly better retention of English learning, attributed to increased engagement in both in-class and out-class activities. Gender analysis found no significant differences in post-test scores, suggesting FCM's effectiveness is

consistent across gender, supporting equal learning opportunities. Overall, FCM proved more effective than TLM in enhancing English learning at the tertiary level.

Recommendations

Based on the insight gained from the study, the following recommendations were given:

The significant enhancement in students' academic achievement and retention through FCM suggests that educators should incorporate flipped instructional methods in their teaching practices. By enabling students to access learning materials prior to classroom sessions, teachers can use class time for higher-order cognitive activities, collaborative learning, and problem-solving.

In the context of higher education, the enrolment ratio of female students is generally greater than that of male students. The absence of gender differences in learning outcomes reveals that flipped learning affords an inclusive instructional approach, assisting its wider application across different groups of learners.

Authorities, policymakers, administrators, and educators can seek out networks with international collaborations for the opportunity to exchange knowledge and best practices from the other countries that have effectively implemented these flipped classroom strategies.

The teachers play a crucial role in the context of flipped learning approaches; hence, stakeholders should provide holistic support to the teachers, such as funding, infrastructure facilities, and professional development programmes. The extensive support can lead the teachers to develop indigenous learning resources as per their learners' needs.

Further research should be conducted on the availability and utilization of learning resources as well as additional technical support to ensure successful and smooth implementation of flipped learning.

Conclusion

The present study explored the effectiveness of the flipped classroom method in enhancing the academic achievement and retention level of students in English learning. The findings confirm that this innovative instructional method significantly enhances the learning outcomes, such as academic achievement and retention level, of the students in learning English at the tertiary level. This result indicate that the flipped classroom environment affords a conducive learner-centred and alternative learning environment for the instructor-led approach. The study contributes positively to the existing literature by demonstrating that the flipped classroom is an effective implementation model for blended learning methodologies.

Conflict of Interest: The corresponding author, on behalf of second author, confirms that there are no conflicts of interest to disclose.

Copyright: © 2026 by K. Muthumeenal, Dr. S. Valliammai Author(s) retain the copyright of their original work while granting publication rights to the journal.

License: This work is licensed under a Creative Commons Attribution 4.0 International License, allowing others to distribute, remix, adapt, and build upon it, even for commercial purposes, with proper attribution. Author(s) are also permitted to post their work in institutional repositories, social media, or other platforms.

References

- Allanazarova Mamura Akhmedovna. (2021). What Flipped Classroom Is And How It Works. *The American Journal of Social Science and Education Innovations*, 3(04), 635–638. <https://doi.org/10.37547/tajssei/Volume03Issue04-103>.
- Badmus, A. M. (2021). Educational Application of Flipped Classroom Instruction: Impact on Students' Academic Achievement in Lagos State, Nigeria. *African Journal of Science, Technology and Mathematics Education*, 6(1), 21-28.
- Bliuc, A. M., Goodyear, P., & Ellis, R. A. (2007). Research focus and methodological choices in studies into students' experiences of blended learning in higher education. *The Internet and Higher Education*, 10(4), 231-244.
- Cabı, E. (2018). The impact of the flipped classroom model on students' academic achievement. *International Review of Research in Open and Distributed Learning*, 19(3).
- Crittenden, W., Biel, I., & Lovely, W. (2018). Embracing Digitalization: Student Learning and New Technologies. *Journal of Marketing Education*, 41, 14 - 5. <https://doi.org/10.1177/0273475318820895>.
- Dirgahayu, T. (2017, September). Student perceptions towards flipped learning in software engineering course. 130-132). Atlantis Press.
- Elian, S. M., & Hamaidi, D. A. H. (2018). The Effect of Using Flipped Classroom Strategy on the Academic Achievement of Fourth Grade Students in Jordan. *International Journal of Emerging Technologies in Learning (iJET)*, 13(02), 110-125.
- Ezeudu, S. A., and Gbendu, G. O. (2020). Effect of Flipped Classroom Strategy on Students' Attitude towards College Geography: Implications for Entrepreneurship Education in Nigeria. *International Journal of Education Studies*, 16(2), 38-51.
- Garrison, D. R., & Vaughan, N. D. (2008). *Blended learning in higher education: Framework, principles, and guidelines*. John Wiley & Sons.

Gong, D., Yang, H. H., & Cai, J. (2021). Investigating the Flipped-classroom Approach on College Students' Computational Thinking Skills. In *2021 International Symposium on Educational Technology (ISET)* (pp. 207-210). IEEE.

<https://doi.org/10.1177/0273475318820895>.

Ibrahim, A., & Haruna, J. A. (2017). Effects of flipped and conventional teaching approaches on performance and retention ability of students in advance financial accounting in Abubakar Tafawa Balewa University Bauchi, Nigeria. *Jurnal Psikologi Malaysia*, *31*(2).

Jantakoon, T., Jantakun, K., Jantakun, T., Noibuddee, A., Pasmala, R., Wannapiroon, P., & Nilsook, P. (2024). The Effectiveness of Flipped Classroom in English Language Learning: A Meta-Analysis. *World Journal of English Language*.
<https://doi.org/10.5430/wjel.v15n3p50>.

Kim, M. K., Kim, S. M., Khera, O., & Getman, J. (2014). The experience of three flipped classrooms in an urban university: an exploration of design principles. *The Internet and Higher Education*, *22*, 37-50.

Kusuma, I. P. I. (2020). The Investigation of Flipped Classrooms on Students' Speaking Performance and Self-regulated Learning. *Social Sciences and Humanities*, *28*(3), 2027-2042.

Li, S., He, J., Tao, Y., & Liu, X. (2022). The effects of flipped classroom approach in EFL teaching: Can we strategically use the flipped method to acquire communicative competence? *Language Teaching Research*, *29*, 1165 - 1188.

<https://doi.org/10.1177/13621688221081575>.

Makinde, S. O., & Yusuf, M. O. (2017). The Flipped Classroom: Its Effects on Students' Performance and Retention in College Mathematics Classroom. *International Journal of Innovative Technology Integration in Education*, *1*(1), 117-126.

- Mason, G., Shuman, T., & Cook, K. (2013). Comparing the Effectiveness of an Inverted Classroom to a Traditional Classroom in an Upper-Division Engineering Course. *IEEE Transactions on Education*, 56, 430-435. <https://doi.org/10.1109/TE.2013.2249066>.
- Nasir, M. A. M. (2020). The Effectiveness of Flipped Classroom Strategy on Self-Directed Learning among Undergraduate Mathematics Students. *Practitioner Research*, 2, 61-81.
- National Education Policy. (2020). Ministry of human Resource Development, Government of India.
- Nirmala, P. J., Sivakumar, P., Selvakumar, S., & Daphine, R. (2022). Efficacy of technology-enabled learning in science at diploma in teacher education level. *Education and Information Technologies*, 1-16.
- Rashid, S., & Yadav, S. (2020). Impact of Covid-19 Pandemic on Higher Education and Research. *Indian Journal of Human Development*, 14, 340 - 343. <https://doi.org/10.1177/0973703020946700>.
- Riedl, A., Yeung, F., and Burke, T. (2021). Implementation of a Flipped Active-Learning Approach in a Community College General Biology Course Improves Student Performance in Subsequent Biology Courses and Increases Graduation Rate. *CBE—Life Sciences Education*, 20(2), ar30.
- Selvakumar, S., & Sivakumar, P. (2019). The Impact of Blended Learning Environment on Academic Achievement of Engineering Students. *International Journal of Innovative Technology and Exploring Engineering*, 8(12), 3782–3787. <https://doi.org/10.35940/ijitee.L3825.1081219>
- Selvakumar, S., Sivakumar, P., & Daphine, R. (2020). Leverage of Learning Science through Blended Learning Techniques. *International Journal of Engineering and Advanced Technology*, 9(4), 2052-2056.

- Smallhorn, M. (2017). The flipped classroom: A learning model to increase student engagement, not academic achievement. *Student Success*, 8(2), 43-53.
- Sun, J. C. Y., & Wu, Y. T. (2016). Analysis of learning achievement and teacher-student interactions in flipped and conventional classrooms. *International Review of Research in Open and Distributed Learning*, 17(1), 79-99.
- Umutlu, D., & Akpınar, Y. (2016). Effects of different video modalities in flipped English writing classes on students writing scores. *New Trends and Issues Proceedings on Humanities and Social Sciences*, 3(7), 60-66.
- Uzunboylu, H., & Karagözlü, D. (2017). The emerging trend of the flipped classroom: A content analysis of published articles between 2010 and 2015. *Revista de Educación a Distancia (RED)*, (54).
- Zhao, Y., & Watterston, J. (2021). The changes we need: Education post COVID-19. *Journal of Educational Change*, 22, 3 - 12. <https://doi.org/10.1007/s10833-021-09417-3>.