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Effect of Flipped Classroom on Students' Cognitive Engagement in English Subject at Secondary Level

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Abstract: *Main theme of the study was to investigate the effect of flipped classroom students 'cognitive engagement in English at secondary level. Major objective of the study was to find out effect of flipped classroom strategy students' cognitive engagement in the subject of English at 9th grade students. The study was experimental in nature and true experimental design pretest post-test design only was implemented to conduct the study. All 9th graders enrolled in Govt. Girls High School Faisalabad district Faisalabad was the target population of the study which was 142. 60 students were randomly selected as random selection. Researcher administered Students' Cognitive Engagement Test on randomly selected 60 students. The students were split into control and experimental groups using the matched-pair technique. A research Instrument, Students' Cognitive Engagement Test (SCET) was developed for the collection of data. Treatment (Flipped Classroom strategies) for six weeks was given to the experimental group. After completion of treatment posttest was administrated on both experimental and control groups. Collected data was analyzed using descriptive statistics (Frequency, Mean, standard Deviation etc.) as well as inferential statistics (Paired sample t-test, independent sample t-test and One-Way ANCOVA). Flipped classroom strategies significantly enhance cognitive engagement in English for 9th graders. Recommendations include adopting innovative technologies to aid learning and establishing structured frameworks to seamlessly integrate flipped techniques into educational curricula, promoting active student participation and adaptive learning. Best practices, alignment of learning objectives, and methods for assessing the results of cognitive engagement should all be highlighted in these guidelines.*

Key Words: Flipped Classroom, Cognitive Engagement, English Subject, Secondary Level, Education

Introduction

Background of the Study

Flipped guidance is a type of mixed learning in the manner that it interfaces up close and personal with internet learning. However, it varies since outside exercises utilized in flipped classrooms ought not to be fundamentally on the web; they might include paper and printed versions materials. So, recordings are not compulsory in flipped classrooms, and the execution of educational recordings doesn't infer flipping a classroom. The flipped classroom is a novel educational climate which arose during the most recent couple of years and is rapidly acquiring in prominence among teachers around the world (Obari & Lambacher, 2015).

The flipped classroom is an educational model where conventional talk and schoolwork components of a course are switched. It transforms customary showing strategies, conveys guidance outside the class and classroom is for completion of school task (Du, Fu & Wang, 2014). It allows instructors to invest extra prominent measures of energy mentoring students instead of addressing passively (Wallace, 2014). The job of the educator has transformed from a supplier of information to an aide, organizer and coordinator

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in the flipped classroom (Basal, 2015). Traditional instructing is nearly instructor focused which clashes with the constructivist ways to deal with teaching and learning (Brooks, 2019). The issue with customary talks, particularly optional education-involves pacing.

The term engagement depends on the conviction that growing experience when students take interest and have profound and great information about the substance and educating is endured and impacted when students are separated. A center comprehension about student engagement level is to manage students' action, interest and endeavors to accomplish their targets. Additionally, students' engagement is the level to which students take an interest in their educational endeavors and attempt to accomplish their ideal closures. Truth be told, students invest a lot of energy and concentrate appropriately and will get a profound and exact comprehension about it. Students' engagement is the significant investment that dedicates students to learning exercises. Engagement has three sorts as cognitive engagement, full of feeling and behavioral engagement. Cognitive engagement is characterized as the mental circumstance of psyche in which students do their endeavors to comprehend a point and how lengthy they read it durable. It likewise incorporates how long the students stay consistent and concentrate on the point. Cognitive engagement is many times estimated by the degree of students' participation, schoolwork, task and co-curricular exercises and how they are inspired by the educator to finish the responsibility (Appleton et al., 2006). It is additionally proposed that positive learning results are connected with the cognitive and mental engagement (Fredericks et al., 2004).

Statement of the Problem

In secondary school, traditional teaching approaches frequently depend on teacher-centered instruction, in which students learn material passively in class and work independently on assignments at home. This method might not adequately encourage cognitive engagement, especially when learning English, which calls for deep knowledge, critical thinking, and active participation. By moving direct instruction outside of the classroom through recorded lectures and digital resources, the flipped classroom approach provides an alternative. This frees up in-class time for interactive discussions, group projects, and problem-solving exercises. It is thought that by encouraging self-directed learning, critical thinking, and active participation, this student-centered approach improves cognitive engagement.

However, despite the increasing adoption of flipped learning, limited research explores its impact on students' cognitive engagement in English at the secondary level. There is a need to investigate whether this instructional approach leads to meaningful improvements in students' ability to engage with, process, and apply English language concepts. Therefore, the aim of this research was to investigate how the flipped classroom paradigm affects cognitive engagement among secondary students in English. Additionally, the study intended to offer empirical proof of the flipped classroom's efficacy in raising cognitive engagement, which will support improved teaching and learning strategies in secondary English education.

Objective of the Study

The objective of the study to find out the effects of flipped classroom strategies on cognitive engagement in the subject of English among 9th grade students.

Hypotheses of the Study

Researcher tested following research null hypothesis to investigate the objective of the study.

Ho: There is no significant effect of flipped classroom strategy on cognitive engagement in the subject of English among 9th grade students.

Conceptual Framework

Figure 1

Conceptual Framework

Review of Literature

The idea of a flipped classroom combines activities that take place in or out of the formal classroom. Extracurricular activities like watching films, visiting websites linked to the course, listening to audio, reading relevant references, and so on are the responsibility of the students. On the other hand, teachers need to produce a dynamic atmosphere in the classroom that encourages group cooperation, pair work, practical exercises, and critical thinking. An instructive design that substitutes what traditionally happens during a face-to-face teaching with engaging actions and allocates the lecture as homework for students to do freely outside of class (Ogden & Shambaugh, 2016).

In order to change the typical classroom lecture paradigm into a more dynamic learning environment, teachers employ a teaching technique called the flipped classroom (Keengwe, 2014). Flipped learning allows for individualized instruction. Flipped learning is intrinsically learner-centric since it incorporates distinguished teaching, project-based learning, and inquiry-based study (Bergmann & Sams, 2014). The utilization of screen casting to deliver instruction that is accessible from anywhere at any time is what sets apart the flipped technique, which was initially introduced in 2006 (Dickenson, 2014). The term "flipped classroom" refers to the relevant learning activities and engagement that occur during in-person time, not online videos. It is an environment where students receive tailored instruction, are motivated to learn, and take ownership of their education (Cross & Board, 2014). "Occasions that formerly occurred inside the classroom now occur outside the classroom and vice versa" is one description of the flipped classroom method. However, the act of enlightening technique cannot be solved by simply requesting the educational and learning assignments (Lage et al., 2000).

The flipped classroom, according to Tune, Sturek, and Basile (2013), involves exposing students to lecture content on their own through pre-recorded formats like webinars, podcasts, and videos that are, as previously mentioned, meant to be seen outside of class. Students are thinking and solving problems at a deeper level in the classroom after finishing the pre-recorded lectures. The instructor can evaluate students' knowledge and ascertain their level of grasp and understanding of the previewed material when there is student-teacher involvement in the classroom (Lo, 2018; Love et al., 2014; Tune et al., 2013).

There are several educational advantages to flipped learning that are not possible with standard teaching methods. Proponents assert that by maximizing class time, the films promote deeper, inquiry-based learning (Brame, 2013). Flipped education proponents assert that the most crucial factor is how a teacher uses the extra class time (Bergmann & Sams, 2012). Teachers might reevaluate how they can best utilize their one-on-one face-to-face time with pupils by offloading direct instruction to videos. Students get time to work with their peers, go further into the subject matter, and get prompt response from their instructor (Hamden et al., 2013). Increasing the amount of time that students and teachers spend interacting during class is the main advantage of the flipped classroom concept. The main advantage, according to educators who use the flipped method, is that they get to interact with each student one-on-one throughout each class period for the initial time in teaching profession (Moore, Gillett, & Steele, 2014). Inquiry-based learning and direct instruction are seamlessly integrated in the flipped model. This gives students more time to acquire 21st century abilities.

Cognitive development is based on socialization. Socialization allows students to work together within their own zone of proximal development, according to Vygotsky (1978). The gap between resent and expected performance levels with peer facilitation has also been referred to as the zone of proximal growth (Liao, 2005). Liao expands on this idea by saying that students might gain from one another's proximal development when they collaborate in groups. A notion is easily grasped when it is debated by people with diverse levels of intelligence. Students that are cognitively engaged learn how to direct their attention, connect with the learning process, self-regulate, and concentrate on the task at hand. It speaks to one's capacity to engage in educational activities in the classroom (Bierman et al., 2008).

Students' attendance, homework, assignments, extracurricular activities, and the way the teacher encourages them to do the work are all common ways to gauge cognitive involvement. A student's perception of school and the classroom setting is referred to as cognitive engagement. Cognitive participation is regarded as a more or less consistent feature of pupils' independence, which is reflected in this definition. Cognitive involvement is somewhat dependent on the work at hand since it affects the

degree of pupils' autonomy. For instance, listening to a teacher, working in groups and engaging in various arguments, or searching the internet for new information all provide different levels of cognitive engagement due to differing degrees of autonomy. Given the lack of student agency involved, listening to a lecture is without a doubt the least cognitively stimulating activity (Appleton et al., 2006).

The audited studies all had similar conclusions and some negative remarks regarding student participation in learning. "A reassuring image of students' engagement with the flipped videos" was offered by Tomas et al. (2019), who also described that "most students watched the flipped recordings at least a couple of times, generally before to heading to class."

Ford (2015) emphasizes learning that "not all pupils were watching the videos" through classroom views. According to Helgevold & Moen's (2015) analysis of observational data, "this flipped classroom model, to some extent, appears to have ignited students' attention and participation." According to Lee & Bonk's (2019) study, students "never snoozed" in flipped classrooms and were "submerged into learning in class time." By examining figures from the scale, established by Tschannen-Moran & Hoy (2001). A critical contrast between the exploratory and control bunches in their benefit scores and the subscales of student engagement and classroom the executives. This showed that differences in students' engagement in flipped classrooms versus traditional classrooms were actually critical for flipped classrooms (Kurt, 2017).

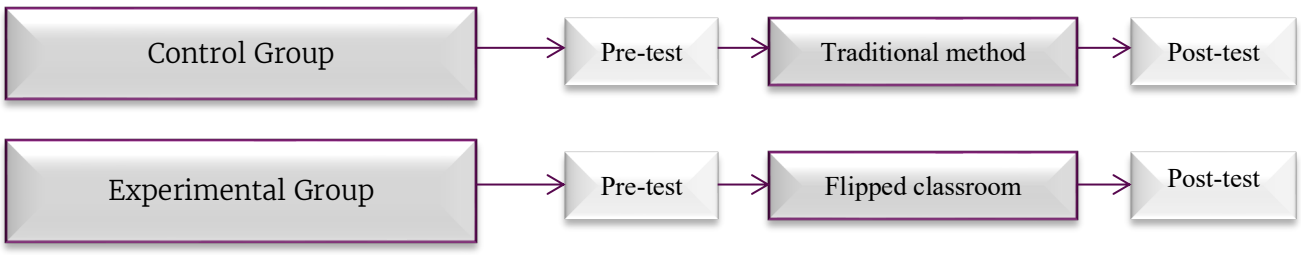
Boevé et al. (2017) conducted experimental research to examine the performance of students in the flipped classroom, using a quantitative technique to investigate student behavior. The final, which accounted for 100% of the contestants' grade in each class, was the only factor used to calculate their grade. For eight of the thirteen classes, students were expected to bring at least one question, and members in the experimental group were given access to a sample lecture for 15 minutes. According to the study's findings, this kind of student involvement raised the question response rate when compared to regular classroom settings. Additionally, it reduced the amount of time students spent reading the course book and analyzing the lecture slides. This study indicates a rise in student participation inside the classroom, despite the lack of conclusive data regarding student performance when compared between flipped and traditional classrooms.

Research Methodology

According to Creswell (2002), experimental design is used to investigate possible cause and effect of independent variable on dependent variable. True experimental design pretest post-test design only was used to conduct the study. Two equal groups were formulated through random assignment. One was control and the other was experimental group. Data were collected quantitatively through cognitive engagement scale which is linked with philosophical paradigm of positivism (Fraenkel & Wallen, 2000).

Figure 2

Research Design



All 9th graders enrolled in Govt. Girls High School Faisalabad district Faisalabad was the target population of the study which was 142. All 9th graders of Govt. Girls High School Faisalabad district Faisalabad were the accessible population of the study. Double stage random sampling technique was used for the true representation of subjects for pretest-post-test experimental design of the treatment research. Total number of students was 142 and 60 students were randomly selected as random selection.

Instrumentation

The development and promotion in Students' Cognitive Engagement is the foundation for academics. Bloom's Taxonomy used as base in teaching and learning for development of SLOs from curriculum. The taxonomy is very effective and mostly uses to assess different types of knowledge (factual, conceptual, procedural, and metacognitive) and development of students 'cognitive engagement. Bloom's Taxonomy is a perfect guide for an effective teacher. Cognitive engagement of 9th grade students in English was tested through (MCQs). The content selected for the Students' Cognitive Engagement Test (SCET) MCQs type test was from curriculum provided by Punjab Textbook Board (2006) Pakistan, titled as Textbook of English 9th grade studied in all Punjab.

Development of Flipped Classroom Strategies (FCS) Module

In the current study, Flipped Classroom Strategies (FCS) Module was developed by researcher and validated by 6 subject specialists of English working in School education department on 16 plus B.PS scales. This module is developed in three stages. At 1st stage selection and alignment of SLOs from English content was done, First Seven lessons and SLOs were given in the National Curriculum for English Grades IX, 2006 document and at the 2nd stage development of Flipped Classroom Strategies (FCS) Module by following blueprint of SLOs. At third stage 30 lesson plans were developed by researcher with alignment of blueprint of SLOs and Flipped Classroom Strategies (FCS) Module.

Data collection of Flipped Classroom Strategies (FCS) Module

Data was collected by following instructions of pretest-posttest experimental design. Students' Cognitive Engagement Test (SCET) was implemented as pretest. 60 students were randomly selected from total 142 students as random selection. Researcher administered Students' Cognitive Engagement scale on randomly selected 60 students. Students were randomly assigned to control and experimental groups using the matched-pair technique.

Data Analysis

Table 1

Difference between Pre Test and Post Test Scores within Control Group regarding Students' Cognitive Engagement

Group	N	M	SD	t-value	Df	Sig.
Pre Test	30	6.27	1.57	-23.981	29	.000
Post Test	30	17.03	2.29			

* p< .05

The control group score on pretest and posttest was examined for differences in students' cognitive involvement using the paired sample t-test. The change between the pretest and posttest mean scores for cognitive engagement is seen in table 1. Pretest (M = 6.27, S.D. = 1.57) and posttest (M = 17.03, S.D. = 2.29, p =.000 <.05) differ significantly, according to the results. It was found that the pretest and posttest mean scores on the students' cognitive engagement differed significantly.

Table 2

Difference between Pre Test and Post Test scores within Experimental group regarding students' Cognitive Engagement

Group	N	M	SD	t-value	Df	Sig.
Pre Test	30	7.50	2.25	-28.647	29	.000
Post Test	30	23.97	2.51			

* p< .05

The experimental group score on pre and posttest was examined for differences in students' cognitive involvement using the paired sample t-test. The change between the pretest and posttest mean scores for cognitive engagement is seen in table 2. Pretest (M = 7.50, S.D. = 2.25) and posttest (M = 23.97, S.D. = 2.51, p =.000 <.05) differ significantly. It showed that the pretest and posttest mean scores for cognitive engagement differed significantly.

Table 3

One-Way ANCOVA Comparing Control and Experimental Groups on Students' Cognitive Engagement

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	730.811[a]	2	365.405	63.853	.000	.691
Intercept	1559.724	1	1559.724	272.554	.000	.827
Cognitive Engagement-Pre	9.744	1	9.744	1.703	.197	.029
Group	605.078	1	605.078	105.74	.000	.650
Error	326.189	57	5.723			
Total	26272.000	60				
Corrected Total	1057.000	59				

R Squared = .691 (Adjusted R Squared = .681)

Two distinct teaching strategies aimed at enhancing students' cognitive engagement were compared for efficacy using a one-way between groups analysis of covariance (ANCOVA). The teaching approach (traditional and flipped classroom tactics) was the independent variable, and the students' cognitive engagement scores were the dependent variable. Following the conclusion of the intervention, a test was administered. In this research, the covariate was the participants' pre-test results as a measure of the students' cognitive engagement.

To make sure that the norms of familiarity, linearity, and similarity of variance, as well as the homogeneity of the regression slope and precise measurement of the covariate, were not broken, introductory tests were implemented. Following the adjustment of pre-cognitive engagement scores, the two intervention groups' post-test scores for cognitive engagements showed a significant variance (F (1,57) =105.74, p =.000, partial eta squared =.650). The partial eta squared value of.691 showed a substantial correlation between the pre-test and post-test scores on students' cognitive involvement.

Table 4

Difference between mean Score of Control Group and experimental group on post-test regarding Students' Cognitive Engagement

Group	N	M	SD	t-value	Df	Sig.
Experimental	30	23.97	2.51	11.158	58	.000
Control	30	17.03	2.30			

* p< .05

To determine if the experimental and the control groups' posttest mean scores differed in terms of students' cognitive engagement, the independent sample t-test was employed. The change between the mean scores of both groups for students' cognitive engagement is seen in table 4. The experimental group (M = 23.97, S.D. = 2.51) and the control group (M = 17.03, S.D. = 2.30) differ significantly, according to the results (p =.001<.05. It was discovered that the posttest means scores of the two groups differed significantly in terms of the cognitive engagement of the students.

It is concluded that null hypothesis that there is no significant effect of flipped classroom activities on students' cognitive engagement at secondary level is rejected.

Findings

1. On post-intervention scores, there was a notable difference between the experimental and control groups regarding reliance (students' cognitive engagement). There was also significant difference between both groups regarding relying on parents but insignificant difference regarding relying on teachers.
2. The two intervention groups score differed significantly after the intervention regarding students' cognitive engagement.

Conclusions of the Study

On the basis of findings following conclusions were drawn:

The hypothesis was about the significant effect of flipped classroom activities on students' cognitive engagement at secondary level. Findings of data presented that there was alteration among mean scores of both group students. So, it was concluded that there is significant effect of flipped classroom activities on students' cognitive engagement at secondary level. Hence, null hypothesis was rejected. Flipped classroom activities have positive effect in enhancing students' engagement. Moreover, these activities played a pivotal role in students' engagement. It was also concluded that flipped classroom strategies are more effective teaching method as compared to traditional teaching method to enhance students' cognitive engagement at secondary level schools.

Discussion

The flipped classroom improves students' cognitive engagement more than traditional learning, according to another study finding. Students appear to be more engaged in active learning activities and studying course material outside of class than with traditional learning methods (Clark, 2013; Cronhjort, Filipsson, & Weurlander, 2018; Elmaadaway, 2018; Steen-Utheim & Foldnes, 2018). In these situations, the flipped classroom may have contributed to the experimental group students' better levels of engagement, as seen in this study. Because it allows students to participate in before class activities that make ready them for formal class activities, the flipped classroom is supposed to increase student engagement more as compared to traditional teaching (Burke & Fedorek, 2017; Clark, 2013; Elmaadaway, 2018).

Recommendations of the Study

On the basis of conclusions, following suggestions are recommended.

1. The institutions may promote the use of learning analytics technologies that can identify surface learning trends, such as ignoring pre-class movies or making flimsy attempts at quizzes. Students exhibiting symptoms of disengagement can receive tailored treatment from institutions using this data.
2. The higher authorities may assist teachers in creating interesting pre-class materials, facilitating student-centered conversations, controlling classroom dynamics, and instantly assessing student learning; by providing professional development programs, as pedagogical abilities are necessary for flipped learning to be effective.
3. In order to incorporate flipped classroom techniques into current curricula, educational authorities should create adaptable yet structured frameworks. Best practices, alignment of learning objectives, and methods for assessing the results of cognitive engagement should all be highlighted in these guidelines.
4. Funding ought to go toward methodical studies on the efficacy of flipped classes in different settings. This covers the creation of cognitive engagement measurements, impact assessments, and longitudinal research. Scaling and policy improvement initiatives can benefit from evidence-based ideas.

References

Appleton, J. J., Christenson, S. L., Kim, D., & Reschly, A. L. (2006). Measuring cognitive and psychological engagement: Validation of the Student Engagement Instrument. *Journal of School Psychology*, 44(5), 427–445. https://doi.org/10.1016/j.jsp.2006.04.002

Basal, A. (2015). The implementation of a flipped classroom in foreign language teaching. *Turkish Online Journal of Distance Education*, *0*(0). https://doi.org/10.17718/tojde.72185

Bergmann, J. and Sams, A. (2014) *Flipped Learning: Gateway to Student Engagement.* International Society for Technology in Education, Eugene, Oregon.

Bierman, K. L., Domitrovich, C. E., Nix, R. L., Gest, S. D., Welsh, J. A., Greenberg, M. T., Blair, C., Nelson, K. E., & Gill, S. (2008). Promoting academic and social-emotional school readiness: the head start REDI program. *Child Development*, 79(6), 1802–1817. https://doi.org/10.1111/j.1467-8624.2008.01227.x

Boevé, A. J., Meijer, R. R., Bosker, R. J., Vugteveen, J., Hoekstra, R., & Albers, C. J. (2017). Implementing the flipped classroom: an exploration of study behaviour and student performance. *Higher Education*, 74, 1015-1032. https://doi.org/10.1007/s10734-016-0104-y

Brame, C. (2013). *Flipping the classroom.* Vanderbilt University Center for Teaching.

Brooks, D. C. (2019). Active learning classrooms (ALCs). *Shaping Future Schools with Digital Technology: An International Handbook*, 41-56. https://doi.org/10.1007/978-981-13-9439-3_3

Burke, A. S., & Fedorek, B. (2017). Does "flipping" promote engagement?: A comparison of a traditional, online, and flipped class. *Active Learning in Higher Education*, *18*(1), 11–24. https://doi.org/10.1177/1469787417693487

Clark, K. R. (2013). *Examining the effects of the flipped model of instruction on student engagement and performance in the secondary mathematics classroom: An action research study* (Doctoral dissertation, Capella University).

Creswell, J. W. (2002). *Educational research: Planning, conducting, and evaluating quantitative* (Vol. 7). Prentice Hall Upper Saddle River, NJ.

Cronhjort, M., Filipsson, L., & Weurlander, M. (2018). Improved engagement and learning in flipped-classroom calculus. *Teaching Mathematics and Its Applications An International Journal of the IMA*, *37*(3), 113–121. https://doi.org/10.1093/teamat/hrx007

Cross, A., & Board, J. (2014). *Creative ways to teach primary science.* McGraw-Hill Education (UK).

Dickenson, P. (2014). *Flipping the classroom in a teacher education course. In Promoting active learning through the flipped classroom model* (pp. 145-162). IGI Global.

Elmaadaway, M. A. N. (2018). The effects of a flipped classroom approach on class engagement and skill performance in a Blackboard course: Effects of the flipped classroom approach. *British Journal of Educational Technology: Journal of the Council for Educational Technology*, *49*(3), 479–491. https://doi.org/10.1111/bjet.12553

Ford, P. (2015). Flipping a math content course for pre-service elementary school teachers. *PRIMUS*, *25*(4), 369–380. https://doi.org/10.1080/10511970.2014.981902

Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2012). How to design research in education and evaluate. *Quarterly Review of Biology*, *76*(3).

Fredericks, J.A., Blumenfeld, P.C., & Paris, A.H. (2004). School engagement: Potential of the concept, state of the evidence. *Review of Educational Research,* 74(1), 59-109. https://doi.org/10.3102/00346543074001059

Hamden, N., Mcknight, P. E., Mcknight, K., & Arfstrom, K. (2013). *A review of flipped learning. Flipped Learning Network.* Pearson Education.

Helgevold, N., & Moen, V. (2015). The use of flipped classrooms to stimulate students' participation in an academic course in Initial Teacher Education. *Nordic journal of digital literacy*, *10*(1), 29–42. https://doi.org/10.18261/issn1891-943x-2015-01-03

Keengwe, J. (Ed.). (2014). *Promoting active learning through the flipped classroom model.* IGI Global.

Kurt, G. (2017). Implementing the flipped classroom in teacher education: Evidence from Turkey. *Journal of Educational Technology & Society,* *20*(1), 211-221. https://www.jstor.org/stable/jeductechsoci.20.1.211

Lage, M. J., Platt, G. J., & Treglia, M. (2000). Inverting the classroom: A gateway to creating an inclusive learning environment. *The Journal of Economic Education*, *31*(1), 30–43. https://doi.org/10.1080/00220480009596759

Lee, J., & Bonk, C. J. (2019). Integrating Flipped learning with Team-based learning in a Pre-service Teacher Education Course: Experiences and Outcomes. *International Journal on E-Learning*, *18*(1), 5–29. https://doi.org/10.70725/125040kiacif

Liao, H. (2005). *The effects of cooperative learning on motivation, learning strategy utilisation, and grammar achievement of English language learners in Taiwan* [Unpublished Doctoral Dissertation. University of New Orleans, USA.]

Lo, C. K. (2018). Grounding the flipped classroom approach in the foundations of educational technology. *Educational Technology Research and Development: ETR & D*, *66*(3), 793–811. https://doi.org/10.1007/s11423-018-9578-x

Love, B., Hodge, A., Grandgenett, N., & Swift, A. W. (2014). Student learning and perceptions in a flipped linear algebra course. *International Journal of Mathematical Education in Science and Technology*, *45*(3), 317–324. https://doi.org/10.1080/0020739x.2013.822582

Moore, A. J., Gillett, M. R., & Steele, M. D. (2014). Fostering student engagement with the flip. *The Mathematics Teacher*, *107*(6), 420–425. https://doi.org/10.5951/mathteacher.107.6.0420

Obari, H., & Lambacher, S. (2015). Successful EFL teaching using mobile technologies in a flipped classroom. *Critical CALL – Proceedings of the 2015 EUROCALL Conference, Padova, Italy*.

Ogden, L., & Shambaugh, N. (2016). The continuous and systematic study of the college algebra flipped classroom. In *Handbook of Research on Active Learning and the Flipped Classroom Model in the Digital Age* (pp. 41–71). IGI Global.

Shi-Chun, D. U., Ze-Tian, F. U., & Yi, W. A. N. G. (2014, April). The flipped classroom–advantages and challenges. In *2014 International Conference on Economic Management and Trade Cooperation (EMTC 2014)* (pp. 17-20). Atlantis Press. https://doi.org/10.2991/emtc-14.2014.3

Steen-Utheim, A. T., & Foldnes, N. (2018). A qualitative investigation of student engagement in a flipped classroom. *Teaching in higher education*, *23*(3), 307-324. https://doi.org/10.1080/13562517.2017.1379481

Tomas, L., Evans, N. S., Doyle, T., & Skamp, K. (2019). Are first year students ready for a flipped classroom? A case for a flipped learning continuum. *International Journal of Educational Technology in Higher Education*, *16*(1), 1-22. https://doi.org/10.1186/s41239-019-0135-4

Tschannen-Moran, M., & Hoy, A. W. (2001). Teacher efficacy: capturing an elusive construct. *Teaching and Teacher Education*, *17*(7), 783–805. https://doi.org/10.1016/s0742-051x(01)00036-1

Tune, J. D., Sturek, M., & Basile, D. P. (2013). Flipped classroom model improves graduate student performance in cardiovascular, respiratory, and renal physiology. *Advances in Physiology Education*, *37*(4), 316–320. https://doi.org/10.1152/advan.00091.2013

Vygotsky, L. S., Cole, M., John-Steiner, V., Scribner, S., Souberman, E., & Wertsch, J. V. (1979). L. S. vygotsky: Mind in society. The development of higher psychological processes. *The American Journal of Psychology*, *92*(1), 166. https://doi.org/10.2307/1421493

Wallace, A. (2014). Social Learning Platforms and the Flipped Classroom. *International Journal of Information and Education Technology, 4*(4), 293-296. http://dx.doi.org/10.1109/ICeLeTE.2013.6644373