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# Impact of Flipped Classroom Implementation on Student Learning Outcomes in Kerala State's Higher Secondary Social Science Curriculum

**Bini T R [1] * , Dr. Atul Singh [2]**

1. Research Scholar, University of Technology, Jaipur, Rajasthan, India
binitr11@gmail.com ,
2. Assistant Professor, Department of Education, University of Technology, Jaipur, Rajasthan, India

**Abstract:** This study aims to investigate the potential benefits of implementing a Flipped Classroom model into language instruction for high school students in Kerala. Students in a Flipped Classroom may study at their own pace while still taking part in live, in-class lectures; it's a hybrid approach that combines online and in-person activities. This paradigm shifts the transmission of basic material to an external location, freeing up classroom time for students to engage in more in-depth knowledge development. The study's pre- and post-test design was a one-group one. Data was collected via examinations and questionnaires. We discovered that the estimated t-value (5.055) was much greater than the t-table value (1.710) after subjecting the data to a t-test. The purpose of this study was to introduce the flipped classroom approach (FCA) to students so that scholars and practitioners could better understand its potential applications. Using a mixed-case study research technique with triangulation, data was acquired via questionnaires and focus groups. On every measure—engagement, usefulness, efficacy, expectation, and satisfaction—the majority of students gave the flipped classroom a good review, and they were also more inclined to recommend it to their peers. The flipped classroom model has many beneficial effects on student learning, including increased motivation, critical thinking, achievement, and group projects.

**Keywords:** Social science, flipped classroom, higher education, Student learning

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## INTRODUCTION

As part of the MHRD, the DHE has ordered schools to promote digital learning possibilities and urge students to fully use free e-learning platforms. Students have access to a range of unique study formats before, during, and after the COVID-19 pandemic, allowing them to study at their own pace. Leaders in the field of higher education have pushed for more online standardization of learning and the "flipped classroom" approach, which involves utilizing class time for in-person training, in light of these complex, confusing, and unpredictable times. As a student-centered, budget-friendly alternative to traditional classroom models, flipped classrooms may help schools deal with increasing enrollments as well as the funding and structural issues that prioritize academic research above student development. Conversely, it educates students on future-proofing their skills in response to global challenges and on the qualities sought for by employers (Ng & Lo, 2022). The flipped classroom approach emphasizes real-world problem-solving, teamwork, and critical thinking to enhance learning, academic performance, and practical knowledge.

The flipped classroom paradigm, which is still in its infancy as an instructional tool, has recently gained traction, especially at the university level (Divjak et al., 2022). The most successful way to motivate

students, according to Yıldız et al. (2022), is to use technology-enhanced teaching methods rather than traditional lectures. Technology is a powerful instrument for enhancing student engagement and enjoyment in the classroom, as stated by Wang et al. (2019) and Tomas et al. (2019). The flipped classroom model makes this point very clear. Güler et al. (2023) asserts that the conventional classroom paradigm might be "flipped" by turning it upside down. An excellent method for students to actively study new material outside of class is to read or watch recorded lectures. Pupils are expected to remember and assess the course information with a critical eye. After going over the subject again, students should form groups to answer issues with each other's assistance (Huang et al., 2023). In the end, students have a deeper understanding of the subject and have a better educational experience. This better, more participatory, and student-centered approach to teaching is superior to the old-fashioned lecture style. In a flipped classroom, students are more actively involved and more prepared for class, while professors spend less time lecturing (Jiang et al., 2022). Students' self-esteem, analytical abilities, academic achievement, interest, and comprehension of the material might all benefit from this. Flipped classrooms allow students to go through course materials at their own pace, which may be helpful for those who are short on time.

## LITERATURE REVIEW

**Chien-Chih Chen et.al (2021)** Enterprise Resource Planning (ERP) courses use all three methods of instruction. Examining how high-FC, conventional BL, and low-FC affect learning results and satisfaction is the goal. The approach used in this study is a quasi-experimental one. The research sample consists of 94 students from two sections of a required course in the Information Management Department at Taiwan's University of Science and Technology. Several findings have been drawn from the study. (1) There are notable variations in the system skill learning outcomes among the three groups as shown by the t test findings. The results of acquiring process knowledge, however, are not much different. According to the findings of the analysis of variance, students rank high-FC BL, low-FC BL, and conventional BL in order of perceived learning outcomes. (3) Students reported the greatest levels of satisfaction with their learning experience in high-FC, low-FC, and conventional BL, according to the findings of the ANOVA tests. (4) Learners are happier with preview e-learning compared to review e-learning, according to the t test result. The results of the research have several important consequences. (1) From an experiential learning theory standpoint, flipped classes are definitely doable. (2) Challenges arise in the real world while using fully flipped classes. One workable approach is a partly flipped classroom, which may be either high-FC or low-FC. (3) E-learning and flipped classrooms promote each other's long-term viability. Four, the ERP-system course has achieved early validation of the flipped classroom model based on the theory of experience learning.

**Elham Shooli et.al (2022)** An educational technique that advocates for the flipped classroom model argue that students may more effectively prepare for classes on their own time by using teacher-prepared online materials. In order to improve learning outcomes for Iranian EFL students at the upper-intermediate level, this research used flipped classroom methodology. The goal of using flipped classroom education was to enhance students' experience with and attitude towards writing in English. From September 2020 to December 2020, the research was run for twelve weeks straight. Eighty English as a Foreign Language (EFL) students from the Rama and Parto institutions, ranging in age from twenty-five to thirty-eight, took part. Questionnaires and an argumentative essay with a pre- and post-test were used to gather data.

Learners had a positive impression of schools that used flipped writing teaching, according to the results. Posttest results showed that the flipped students had accomplished more than their nonflipped peers. A variety of pedagogical implications for curriculum designers, instructors, administrators, and learners were also highlighted by this study's conclusions. Findings from the research could also be useful for policymakers and educators looking to implement flipped classrooms.

**Mingming Shao et.al (2021)** The flipped classroom model reimagines traditional lecture formats by shifting the focus to student engagement and independent study. Which model is better for today's children is still up for debate, despite the abundance of research comparing the efficacy of flipped and conventional classrooms. This research used meta-analysis to look at how flipped classes affected students' performance in comparison to more conventional courses. A total of 63 experimental publications matched the inclusion requirements for the meta-analysis, which was reached by searching WoS databases according to preset eligibility criteria. The present meta-analysis was conducted using STATA. Students' academic performance may be enhanced with the flipped classroom model, according to the findings. Results from the sensitivity analysis suggested that variations in experimental designs and flipped classroom implementations could account for the high levels of variability seen in the subgroup analyses. The findings give light on many aspects of flipped classrooms, which might help teachers plan for their future use.

**Bengi Birgili et.al (2021)** Flipped classrooms give students a number of advantages as a novel active learning approach. The purpose of this research was to identify patterns and conclusions drawn from studies on the flipped learning method that were published between 2012 and 2018. Academic journals included in five major databases that assign journals the highest impact factor had 316 research and conceptual papers reviewed using descriptive content analysis. Research in the fields of education and medicine mostly use mixed-method research designs and often involves students as the primary study population. Most implementations of the flipped classroom model occur at universities. Research on flipped classrooms has been spearheaded by Asia. Last but not least, flipped classrooms saw an uptick in performance and an improvement in students' hard and soft abilities.

**José María Campillo-Ferrer et.al (2021)** The purpose of this research is to examine how the flipped classroom model has affected the motivation and perception of learning among education majors during the current epidemic. During the 2020–2021 school year, 179 preservice teachers from the University of Murcia's School of Education participated in the flipped classroom experiment. We used descriptive statistics and non-parametric tests to look at the results of the same surveys. The results of the pre- and post-tests were significantly different, with more experienced students averaging better scores on the post-tests. Because of the flipped classroom model's emphasis on hands-on learning and enhanced student agency, the majority of students had a favorable impression of it.

## METHODOLOGY

Using a pre-post test design, the study approach was experimental. For the 2023–2024 school year, a random selection of 24 eleventh graders from Unpatti Laboratory High School made up the sample. The students' capacity to understand German texts served as the dependent variable in this research, while the Flipped Classroom methodology served as the independent variable. To find the average change in score between the pre- and post-test, we used the dependent t-test formula. Over the course of eight sessions, the

patient received therapy that included the Flipped Classroom form of instruction. Both before and after therapy, patients were given tests to gauge their progress.

**Research design**

Data was gathered via focus groups and surveys using a mixed-case study research strategy with triangulation. The purpose of this case study was to examine how undergraduates undergoing pre-service teacher preparation felt about and dealt with the flipped classroom model.

**Participants**

Students from the College of Education were divided into two groups for this research. Due to the COVID-19 epidemic, which caused all schools and institutions to close for the 2020/2021 academic year, the tutor used the flipped classroom technique at the College. This research used the easy sampling strategy to collect data from 62 chemistry course participants. Introductory chemistry was a required course for the participants, who were pursuing degrees in mathematics, science, and vocational programs.

**Data collection**

In order to collect data, a survey was created and sent out to everyone who took part. In order to gather information on students' experiences with learning in the flipped classroom setting, the researchers devised a 27-question survey. In accordance with Likert's (1932) five-point scale, which states that "strongly agree" is the highest possible score, "agree" is the next highest, "not sure" is the lowest, "disagree" is the lowest, and "bad" is the lowest. Additionally, participants were given the opportunity to share their thoughts and feelings on the course materials, the delivery of the content, the learning results, and any difficulties they had when putting the course into practice via the use of open-ended questions. Only 44 out of 62 questionnaires (71% of the total) were considered suitable for analysis since they answered every item.

## DATA ANALYSIS

The study spanned the months of May through August of 2023. The course of therapy consisted of eight separate appointments. The research data were then analyzed using Simple Regression Analysis with SPSS.

**Table 1. Results of Simple Regression Analysis**

Coefficients[a]

| Model | | Unstandardized Coefficients | | Standardized Coefficients | | |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | t | Sig. |
| 1 | (Constant) | -66.934 | 37.416 | | -1.789 | .087 |
| | German learning outcomes | 2.202 | .436 | .733 | 5.055 | .000 |

Based on the output, it can be concluded that "There is a significant effect of using the Flipped Classroom model on Kerala learning outcomes," as the significance value (Sig.) of 0.000 is less than the probability of 0.05. This proves that eleventh graders in Kerala benefit greatly from the Flipped Classroom approach.

**Hypothesis Testing by Comparing thit and ttab Values**

According to the results, the thit value is 5.055, and the critical value of $t^{tab}$ for a 24 total sample is 1.710882. It follows that "There is a significant effect of using the Flipped Classroom model on Kerala learning outcomes," as the thit value is higher than the $t^{tab}$ value.

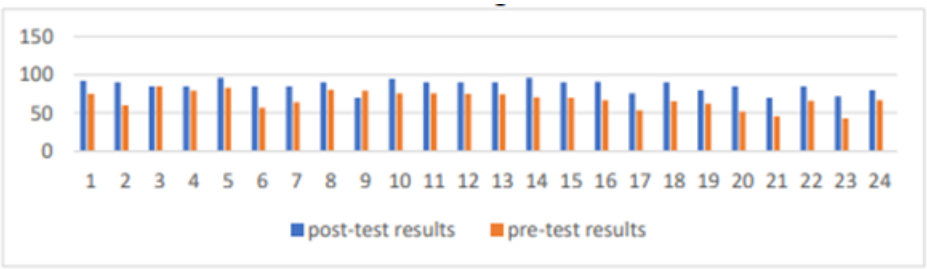


**Figure 1. Learning Outcomes**

The pupils' pre- and post-test scores were significantly different, as shown in the table above. This points to the fact that the capacity for creative thought has a substantial impact on the educational performance in Kerala. We are all aware that the Flipped Classroom is one kind of blended learning. In the flipped classroom paradigm, students and teachers work in opposite directions. The conventional wisdom is that children should study a topic at school (by teacher-led lectures, small-group work, individual work, or reading and observation) and then practice what they've learned at home (homework). However, in a flipped classroom, students study on their own time (by reading relevant materials, viewing instructional videos, taking notes, asking questions, or participating in online discussions with classmates). This agrees with the findings of Wijayati et al. (2022), who found that students in the Kerala language learning course preferred online evaluation using multiple-choice and true/false questions. In general, this approach provides benefits that might encourage students to feel comfortable expressing their own ideas and taking ownership of their work.

**Students' general perceptions of the flipped classroom approach**

Perceptions of the flipped classroom method by students were the primary focus of the first study question. To gauge overall impressions and satisfaction with the flipped course, the survey included six components. Tabulated in Table 3 are the means, standard deviations, and internally consistent variables.

**Table 2: Students general perception and satisfaction of flipped classroom approach**

| Constructs | Mean | SD | No. of items |
|---|---|---|---|
| Satisfaction | 3.50 | 0.54 | 1 |
| Teacher support | 3.62 | 0.68 | 3 |
| Students expectation | 3.50 | 0.58 | 2 |

| | | | |
|---|---|---|---|
| Students engagement | 2.49 | 0.25 | 5 |
| Usefulness | 3.54 | 0.34 | 4 |
| Effectiveness | 1.50 | 0.45 | 2 |

Learning in the flipped classroom setting was met with varying degrees of pleasure from the students. Sixty percent of those who took the poll said it was generally excellent. Positive adjectives like "good" and "very good" were utilized. Forty percent of students voiced their disapproval of flipped classrooms, describing them as tough, dull, tiresome, and unpleasant. A few students voiced their approval of the flipped classroom concept, calling it forward-thinking and saying that, in an increasingly technological environment, it would benefit them to take advantage of online education today so they may be better prepared for the future. Among all the categories, teacher support had the highest mean score (M=3.62, SD=0.68), followed by usefulness (M=3.54, SD=0.34), and student involvement (M=2.49, SD=0.25). Results showed that students were generally satisfied (M=3.50, SD=0.54) and that they had reasonable expectations (M=3.50, SD= 0.58). M=1.50, SD=0.45) was the efficacy category's lowest mean score.

In addition, when asked about their overall impression of the flipped classroom, survey takers gave positive feedback, with participants indicating that the course was well-designed and that they learned a lot from it (M = 3.50, SD=0.54). There was a positive link ($p<.05$) between student happiness and other associated factors, according to a correlation findings study:

- Instructors' proficiency, knowledge, and methods for involving pupils (r = 0.63)
- The subject was described by the instructors, and my knowledge was further strengthened by the study resources (r = 0.54).
- How well students believe they are able to apply their knowledge, abilities, and experience with ICT for learning (r = 0.58)
- Students' assurance that they would get a high mark in the class (r = 0.42)
- Reading and watching videos before to class increased my learning (r = 0.51).
- Perceptions of students' level of engagement in class discussions (r = 0.61)
- In a flipped classroom, students' confidence in their own learning increased (r = 0.55).

Supplementing the students' high level of satisfaction with the flipped classroom approach, Table 4 below shows that the majority of students agreed or strongly agreed (4= agreed and 5= strongly agreed) that they could get a good grade in the course taught using the flipped classroom method (M= 4.43, SD = 0.54).

**Students perceived benefits of the flipped classroom approach**

Table 3 shows that respondents thought the flipped classroom concept had good effects on learning.

**Table 3:** ***Mean value of students' perceived learning outcomes***

| Constructs | Agree (%) | Disagree (%) | M | SD |
|---|---|---|---|---|
| I have the knowledge and skills of using ICT to learn | 75.3 | 20 | 3.75 | 0.46 |
| Blended learning encourages me to look for extra information about the topic | 58.6 | 31.2 | 4.00 | 0.01 |
| I am confident I can get a good grade in this course | 97.9 | 1.5 | 4.43 | 0.54 |
| I am more confident in learning in a blended environment than the lecture method | 72.3 | 20.5 | 2.57 | 0.98 |
| I watched the videos read materials before class, and it helped me to learn more | 68.3 | 36.8 | 3.57 | 0.79 |
| The videos and learning materials are exciting and motivated me to learn | 78.4 | 19.6 | 3.00 | 0.82 |
| I was too anxious about blended learning, and now my confidence has increased | 62.5 | 18.4 | 3.75 | 0.71 |
| Teacher using different teaching strategies enhanced conceptual understanding | 59.4 | 35.2 | 3.63 | 0.74 |
| I participate actively in-class discussion, problem- solving activities than lecture | 42.8 | 48.3 | 3.29 | 0.95 |
| Seeing the teacher for face-to-face discussion makes learning easier for me | 57.1 | 28.1 | 3.43 | 0.79 |
| The course content was too much, and the blended learning made it easier to learn | 64.8 | 15.6 | 3.63 | 1.06 |
| Participating in online group work encouraged me to understand better | 15.0 | 85.7 | 2.29 | 0.76 |

According to the results, participants in blended learning are more likely to seek out knowledge beyond what their instructor delivers in class (M= 4.00). According to student feedback, seeking out more information improves their knowledge building, which in turn boosts their confidence to do well in class. With a mean score of 4.43 (highly agreed by 42.9%), the construct - I am certain I can earn a decent mark in this subject - stood out. Particular expertise and familiarity with ICT are necessary for students to take charge of their own education in a flipped classroom. The majority of participants (75%) felt they had gained the necessary abilities to learn independently via the use of information and communication technologies (M=3.75, SD= 0.46). According to the findings, 68% of the students felt motivated to prepare for class by viewing videos and reading materials, which improved their learning (M=3.57, SD= 0.79). The success of flipped classrooms depends on the quality of the in-class communication and engagement between teachers and students. Students felt that their questions and concerns about the course videos and readings were better addressed during in-person class discussions with teachers. Nearly 60% of students felt that having one-on-one conversations with their instructor improved their knowledge (M=3.43, SD= 0.79). A large percentage of students (59%) felt that their teachers used a variety of approaches to clarify ideas during class discussions. Students were encouraged to study more since the teacher used a blended learning strategy to teach the course.

## CONCLUSION

All parties involved—students, schools, and researchers—stand to gain much from the Flipped Classroom approach, as this study shows. Improved academic achievement, classroom participation, student motivation, and responsibility have resulted from this method's use in schools. Teachers also gain when they are able to spend more quality time with their pupils. Students' critical thinking, teamwork, communication, and creative capacities are greatly enhanced by the Flipped Classroom model. As a result, classroom relationships between teachers and students are improved, leading to more positive interactions and less instructor domination. Students are given more agency in their learning using this approach, which enables them to better organize their study space, study whenever they need to, and take charge of their own learning. Students are at the core of the flipped classroom model. While the flipped classroom model has been used at many educational levels (e.g., secondary, college, and university) to showcase its advantages, students have received very little attention. Learning outcomes have been the primary focus of these research, whereas the importance of preparing future educators to embrace technology-integrated instruction as a professional development strategy in their first year of teaching has been largely disregarded. There is a need to emphasize certain aspects while using the strategy, however the results of this research on flipped classrooms are promising for teacher education.

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