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Comparative Analysis of Flipped Classroom Vs. Traditional instruction IN Social Science Education

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: As part of an Action Research project, this research aims to investigate how students see the flipped classroom (FC) method of instruction, in which traditional classroom instruction takes a back seat to students' independent study outside of class. In order to do this, a 13-week curriculum was devised to include multimedia technologies into writing courses for pupils. Information was gathered via a final survey, students' ongoing self-reflections, and teachers' field notes based on observations. The researchers set out to determine if and how flipped classrooms would improve students' grasp of social science in upper-level secondary education. The efficacy was determined by the use of the experimental research approach. An experimental investigation using a pre- and post-test comparable group design was conducted. There was a random selection of sixty students from the History III group.

Keywords: Flipped classroom, traditional classroom, social sciences

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INTRODUCTION

According to Wang and Schmidt (2001), the main goal of science education is to help students achieve a certain level of scientific knowledge that may be used in school. Concerns about the scientific educational model's capacity to provide university students with the necessary abilities to establish their future jobs have been highlighted by higher education changes. The science community has made multiple efforts to address student problems, such as disengagement and negative attitudes toward science education (Howard, 2017), but current methods of instruction fall short of students' needs (Cagande and Jugar, 2018). Educators need to address the five main challenges that Thornburg (2009) listed for science students in order for them to meet societal expectations: 1) an inadequate supply of qualified teachers; 2) the importance of viewing science as more than just a static subject but as an ever-changing human activity; 3) the dearth of opportunities for students to gain practical experience in the sciences; 4) the importance of viewing science as both an inquiry and a process; and 5) the difficulty of making connections between different areas of study. One kind of classroom teaching is the "flipped classroom," which sometimes goes by the name "inverted classroom." In this approach, students get all of the course materials—lectures, readings, and other resources—online before class starts so they have time to prepare. In contrast to traditional lecture formats, flipped classrooms encourage student-teacher collaboration via hands-on projects and independent content review (Chen, et al., 2014; Lai and Hwang, 2016). According to Burke and Fedorek (2017) and Bergmann and Sams (2012), flipped classrooms allow students to demonstrate a deeper knowledge of the topic than in the conventional model.

The educational system was not immune to the effects of the COVID-19 epidemic. Institutions used several tried-and-true creative teaching-learning strategies when face-to-face meetings between instructors and students became impractical. When the students went back to the traditional classroom setting, they continued to use some of the successful learning strategies. One of these approaches is the flipped classroom model, which aims to meet the needs of students at different levels of understanding by facilitating active learning, peer collaboration, and promoting customized learning. In the flipped classroom model, students do more of the talking and the instructors do more of the listening instead of the other way around. Students in flipped classrooms watch recorded lectures at home and complete them as homework, while the rest of the class uses that time to engage in active learning via discussion and collaboration. Because of this, the classroom becomes an interactive learning environment where students may study at their own speed and where teachers have more time to provide individualized attention. Learning in a flipped classroom usually combines online and in-person components.

LITERATURE REVIEW

Joan Paltinca et.al (2022) The purpose of this research is to find out how well flipped classrooms work for teaching science to students in tenth grade. To compare the efficacy and disposition of students receiving standard vs flipped lessons, a mixed-method approach is used. The statistical significance of the difference in the groups' mean gain performances was established using an unpaired t-test. Students' performance and mood were shown to significantly improve in flipped education. Students demonstrated less familiarity with the scientific material and performed worse on the pretest. The students' performance improved and they got good post-test scores when flipped instruction was used in science class. Throughout class activities, students gained self-assurance, motivation, and curiosity, which set the stage for a positive attitude toward the scientific courses that followed. So, compared to the conventional method of teaching, flipped classrooms are more effective in terms of student learning.

Retta Guy et.al (2016) The research was carried out at a comprehensive urban land-grant institution and the findings are presented by the authors. In order to evaluate the effectiveness of regular and flipped classrooms, this research opted for a quasi-experimental method. The research period was three years, from the autumn of 2012 to the spring of 2015. Over the course of the research, 433 students who had declared a major in business and had self-enrolled in several portions of the Management Information Systems course were considered participants. Since the manner of teaching affected students' final grades, the present study's findings were consistent with those of earlier research. Therefore, compared to conventional lecture-based settings, the flipped classroom model provides more leeway without sacrificing performance.

Tuğçe Gamze İşçi et.al (2023) The purpose of this research was to see how students felt about and how much of an impact the flipped learning approach had on their social studies class performance and their ability to think critically. The study used a mixed-methods approach, namely an explanatory sequential design. Thirty seventh graders from two Turkish secondary schools connected to the Ministry of National Education in the Bor District of Niğde Province made up the research study group. The research found that students in the experimental group, whose social studies class was taught using the flipped learning model, outperformed the students in the control group in terms of both academic achievement and total scores for

higher-order thinking skills. The examination of the data gathered from the semi-structured interviews also showed that students in the social studies course that used the flipped learning model knew the topics better and had good sentiments about the model.

Susan L. Hotle et.al (2015) Many colleges and institutions are adopting the flipped classroom model as a way to save expenses and increase student engagement. While numerous studies have shown that flipped classes are beneficial, they have often overlooked potential confounding variables. Comparisons between classes taught by different professors or between classes offered in various terms using different exams are two examples of circumstances that could introduce bias. The purpose of this research is to examine, with the use of appropriate controls, the relative merits of conventional and flipped classroom approaches to teaching civil engineering to undergraduates. To measure student views and learning outcomes, the quasi-experimental research takes into account students' online actions, in-class performance, attendance during office hours, and answers to both behavioral and attitude questionnaires. There was no statistically significant difference in test scores between students in conventional and flipped courses. Students couldn't ask questions during lectures, which was a major complaint about the flipped classroom model. There was a little but noticeable increase in attendance during office hours among students enrolled in flipped classes as compared to those enrolled in conventional courses. The impact of students' incapacity to ask questions on learning results in flipped classrooms should be investigated in future studies.

Yongyi Chen (2023) There is some common ground between the evolution of pedagogical practices and the variables that impact students with dyslexia, according to several research. Still, there are a lot of unanswered questions and subtleties on how the method of instruction affects dyslexia. This research aims to evaluate the impact of a shift from a conventional to a flipped classroom model on dyslexia by drawing on a variety of literary ideas. I was hoping to understand that the flipped classroom model affects dyslexia and that it may benefit students who struggle with the reading skill. Both students and teachers of dyslexia may benefit from this in the real world.

METHODOLOGY

Design, participants and setting

Teachers might participate in action research as a means of enhancing their own professional development. Research questions and related studies should be identified, a research plan should be developed, data should be collected systematically, analyses should be performed, evaluations and summaries should be prepared, and finally, the study should be shared with others. These are the six steps that make up an AR project (Richards & Farrel, 2005; Arksey & O'Malley, 2005). By raising awareness, this study hopes to learn how students feel about the flipped classroom model and how they compare it to other traditional forms of instruction.

The thirteen weeks of the semester were devoted to this augmented reality project in writing classes, which followed the four writing practices outlined by the level's curriculum office. There were no writing exercises in the weekly schedule for weeks 5 and 9 since those were the weeks of midterms. After each writing class, students filled out a brief self-reflection form that asked them to think about what they liked and didn't like about the writing lesson for that week. Data analysis and reporting were assigned tasks for

the last three weeks of the semester. After completing the final survey, the participants were given diplomas that the instructor had prepared.

Description of the flipped and traditional instruction

The following procedures were used to carry out the flipped classroom study in line with the AR plan: The first thing that was done at the start of the trimester was to establish a class group on Remind, which is a platform for exchanging information among schools, instructors, and students (https://www.remind.com/). Teachers may use Remind to form student groups and then communicate with them via the sharing of announcements, links, files, images, and more. There was no need to provide further instruction on the usage of Remind as the students were already acquainted with it. In Weeks 4 and 7, two of the four writing strategies were tested using the flipped classroom model, while Weeks 6 and 10 were devoted to more conventional research.

Traditional methods of education centered on classroom lectures. During Week 6, students sat quietly and listened to the instructor speak on the Writing Approach: Compare & Contrast. The pupils then used the class time to do the activities in the booklet. Later on, they were provided with the subjects for their essays. In a similar vein, the writing booklet was used to study and complete the tasks for the final writing approach: refutation. The pupils were prompted by the curriculum office to write the whole essay.

DATA COLLECTION AND ANALYSIS PROCEDURE

In order to provide a detailed account of the classroom that was being studied, this research blended quantitative survey methodologies with qualitative analysis. With this mixed-methods approach, the researcher was able to collect trustworthy information from a variety of sources. Due to the critical relevance of genuine reflection in creating believable conclusions, qualitative data was primarily gathered via students' frequent self-reflections (open-ended questions) and teachers' observational field notes. Being an educational researcher and a course teacher were two sides of the same coin that I was thrust into by the study technique.

A total of sixty eleventh graders from the Government Higher Secondary School in Reddiar Patti, Tirunelveli, participated in the experimental research. (Group A: 30 participants; Group B: 30 participants) The research used the following instruments. The following resources were utilized: video lessons based on a lesson from the class XI history textbook, class XI history textbook lesson transcripts, an achievement exam in social science, and two evaluation rubrics for video lessons: one for experts and one for students.

DATA ANALYSIS

Qualitative findings

Teachers' field notes and students' frequent self-reflections helped us discover how students felt about flipped learning compared to conventional education in writing classes. Based on the data analysis, three main categories were formed: how students perceived the flipped classroom model, how effective the model was in terms of learning, and how the classroom atmosphere changed. Students' favorable impressions of the flipped classroom approach emerged as the primary theme from the responses. When asked about their experience with the teaching style, most students said it was good. Their appreciation of

the flipped class format was the main element that lead to contentment. In comparison to more conventional forms of writing instruction, they found it engaging and fun. Students provided the following feedback about their views (sentences containing students' remarks were preserved in italics):

> I love how engaging the activities and examples are. I loved it everything. To be honest, I like essay writing. Flipped classrooms were also enjoyable for me. We could play a game. We completed the task. That technical game was top-notch, and I had a great time playing it. Prior to class, I like viewing videos. This class project is adorable. Beautiful flowers and trees, our card game will always be remembered.

On the other hand, by Week 7's second practice, students had a better grasp of the flipped classroom concept. The observational notes show that the exercises were successful and that the students enjoyed themselves as they worked in small groups, just as in the prior session. In addition, a student said that the graphic organizer that was handed out as class materials helped her.

Quantitative findings

In terms of the numerical data, a final survey with ten questions and space for optional comments has been carried out (n=21). In Table 1, we can see how much agreement students had on the survey's main points.

Table 1. Students' perceptions of flipped classroom and traditional classroom

Survey Items	Total items, n[a]	Totally agree, n (%)	Agree, n (%)	Neutral, n (%)	Disagree, n (%)	Totally disagree, n (%)
1. I liked reading notes on the webpage design and watching videos rather than having straight lecture about the topic.	21	3 (14)	9 (43)	7 (33)	0 (0)	2 (10)
2. I would have liked to study via traditional teaching methods in all lessons.	21	2 (9)	4 (19)	10 (48)	4 (19)	1 (5)
3. I would rather have the teacher lecture in class and then complete the exercises in the course book during the class hour.	21	7 (33)	2 (10)	8 (38)	1 (5)	3 (14)
4. I liked doing more collaborative and engaging group work activities in lesson than doing straight exercises.	21	5 (24)	9 (43)	5 (24)	0 (0)	2 (9)
5. The use of links (videos + website lesson format) enabled me to learn the material more effectively than lecture alone.	21	5 (24)	8 (38)	5 (24)	1 (5)	2 (9)
6. I felt disconnected and uncomfortable without a teacher being present during the virtual online class.	21	2 (9)	5 (24)	8 (38)	2 (10)	4 (19)
7. I managed to grasp the main points of the lecture with "Flipped Classroom" more than I did when we used traditional methods of instruction.	21	1 (5)	3 (14)	12 (57)	2 (10)	3 (14)
8. I would report this experience as a significant challenge and an obstacle to learning.	21	2 (9)	8 (38)	6 (29)	2 (10)	3 (14)
9. I had difficulty in having access to technology for out-of-class materials.	21	2 (10)	3 (14)	11 (52)	3 (14)	2 (10)
10. I would rate my achievement from this experience as positive.	21	4 (19)	3 (14)	10 (49)	2 (9)	2 (9)

Some information on the flipped classroom model was divulged in the survey's open-ended optional remarks. At least one learner found this innovative method of instruction to be effective. One additional student voiced worry about not having enough time to view the videos and complete the assignments. In a similar vein, the literature has addressed the concerns leveled against this form of instruction.

Hypothesis 1

In terms of goals like knowledge, comprehension, application, and skill, there was no statistically significant difference between the control and experimental groups' mean pre-test scores.

Table 2 Difference between Mean Scores of Pre-tests of Control and Experimental Groups in their Attainment of Objectives such as Knowledge, Understanding, Application and Skill

Objectives	Control		Experimental		't' value	Remarks
	Pre-test		Pre-test			
	Mean	S.D	Mean	S.D		
Knowledge	5.03	2.484	6.00	2.704	1.317	NS
Understanding	8.30	2.667	7.97	2.297	0.439	NS
Application	4.67	1.918	4.07	1.818	1.403	NS
Skill	1.97	0.890	1.53	0.860	1.987	NS

Based on the data in the table, it seems that the experimental group outperformed the control group on the pre-test in terms of knowledge, comprehension, application, and competence. In terms of completing all of the goals, it is clear that the experimental and control groups performed similarly on the pre-tests.

CONCLUSION

There are a number of ways in which this research adds to the dynamic field of language instruction by using the partially-flipped classroom paradigm in conjunction with Action Research. First, the flipped classroom approach is in line with social constructivism as it promotes and facilitates both individual and group work in the classroom. The constructivist stance values student-to-student and student-to-teacher dialogue highly. The students' comments and feedback varied to a certain extent, but overall, the reports were consistent. Research by Chi-Pu Chou (2021) suggests that the flipped classroom approach may help students, particularly those who do poorly in school or who have difficulty paying attention in a typical lecture setting, learn in a more effective, encouraging, motivating, and engaging manner. Abdullahi Jalal (2018) According to Campillo-Ferrer et.al. (2021), pupils viewed the flipped classroom model well. In conclusion, the flipped classroom model is an exciting new development in educational technology that has the potential to improve students' learning experiences by inverting traditional classroom layouts and to help teachers become more self-aware in the classroom by identifying their own strengths and areas for improvement.

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