

# Understanding Disciplines and Subjects: A Pedagogical Innovation in Teacher Education through the Use of Flipped Classrooms

## OPEN ACCESS

Manuscript ID:  
ASH-2024-12048608

Volume: 12

Issue: 4

Month: April

Year: 2025

P-ISSN: 2321-788X

E-ISSN: 2582-0397

Received: 19.02.2025

Accepted: 26.03.2025

Published Online: 01.04.2025

## Citation:

Ramani, Pramila, and S. Padmini. "Understanding Disciplines and Subjects: A Pedagogical Innovation in Teacher Education through the Use of Flipped Classrooms." *Shanlax International Journal of Arts, Science and Humanities*, vol. 12, no. 4, 2025, pp. 22–26.


## DOI:

<https://doi.org/10.34293/sijash.v12i4.8608>



This work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License

**Pramila Ramani**

Assistant Professor, Central University of Tamil Nadu, Thiruvavur, India  
 <https://orcid.org/0000-0003-0297-2754>

**S. Padmini**

Assistant Professor, Central University of Tamil Nadu, Thiruvavur, India

## Abstract

The flipped classroom is a popular pedagogical innovation in teacher education. For the preparation of teacher preparation course *Understanding Disciplines and Subjects*, the flipped classroom is used. Flipped approaches have many advantages. It reverses the traditional teaching pattern by having students work outside of class and learn actively in class. Increased participation, understanding of complicated ideas, and critical thinking are examples. Technology concerns, proper instructional design, and student readiness are major challenges to implementation success. The flipped classroom study, how it might be applied in teacher education, and its potential and drawbacks are examined in this article. The results suggest that the flipped classroom can improve pre-service teachers' education by teaching them how to understand and teach cross-disciplinary interactions. It is well-planned and supported. This creation is a step toward modernizing teacher preparation for 21st-century students.

**Keywords:** Flipped Classroom, Pedagogical Innovation, Understanding Disciplines and Subjects, Traditional Teaching

## Introduction

In higher education, the flipped classroom model has gained much attention as an innovative approach to teaching and learning. Instead of delivering direct instruction during class and assigning work for later, the flipped model promotes active student engagement with the course material before class. We achieve this by flipping the traditional classroom instruction schedule. Engaging in activities that promote active learning, like having discussions, working on problem-solving exercises, and collaborating on projects, usually happens when students are physically in the classroom. This method of instruction is an excellent fit for the course *Understanding Disciplines and Subjects* in teacher education programs. This course is designed to give pre-service teachers a deep understanding of how different academic disciplines interact and evolve. We are exploring the flipped classroom as a pedagogical innovation to deliver this course. The essay explores both the advantages and challenges associated with the flipped classroom.

## Review of Related Literature

Researchers have looked into a teaching method called the *flipped classroom* to see if it helps students stay interested and learn. Bergmann and Sams first talked about the idea of the 'flipped classroom'. By using this method, education is improved because it makes learning more specific and interesting. It is very important to do this when working with abstract and

hard-to-understand topics. Researchers who study teacher professional development say that the split classroom model is good for both teachers and students because it emphasizes working together to learn and thinking critically. According to (Strayer), you need to work on the skills above in order to become an expert in a lot of different jobs.

(Bishop and Verleger) used the flipped classroom method to study it and then talked about what they found. They also talk about the benefits of the flipped classroom method, which, according to them, gets students more involved and makes it easier for them to understand what they are learning in school. There is study that shows that flipped classrooms help students do more complex thinking. This is because students are better able to use what they learn in school in real life. The reason why the event happened. That's why things are the way they are. Students should be able to learn about the historical and theoretical roots of a lot of different subjects. This is a great subject for classes like Understanding Disciplines and Subjects, which are out there.

But flipping the classroom brings up important issues that need to be dealt with. We need to figure out how to fix these issues. (O'Flaherty and Phillips) say that if you want to successfully start a new course, you should make big changes to the way it is structured. This is something that needs to be fixed. It's also important to get the kids ready for class. (Abeysekera and Dawson) say that all students must have access to the tools they need to do pre-class tasks. Some students don't have the same access to these tools, which could lead to tech issues. The flipped classroom model could help students do better in school and help teachers get better at what they do, even though it has some problems. The truth stays the same even after being used.

(Gaindo-Dominguez) say that Flipped classes are popular. Access to educational technology resources is the main reason for this. Others applaud this strategy. Our study will determine if split classrooms work best. A comprehensive review advised the study with control and before and after groups. With 5541 students in 61 studies from 18 databases, the Flipped Classroom method improves secondary and higher school learning more than other methods. It may boost motivation, self-efficacy, cooperation,

and involvement more than others. Flipped Classroom performed comparable to other primary school systems regarding learning, self-concept, and social environment. Depending on schooling, the Flipped Classroom and control groups differed by 1.36 to 1.80 times more. The Flipped Classroom may be better than a traditional college education, say studies. Traditional methods are rarely used in primary school; thus, they do not help.

### **Pedagogical Innovation in Teacher Education**

A new way of teaching in teacher education. The flipped classroom significantly changes how teachers are trained, especially in classes that focus on learning subjects and disciplines. This method changes the focus from passively taking in knowledge to actively learning with the student at the centre. Before going to class, pre-service teachers should read and think about what they will be learning. This makes them more ready to take part in discussions, ask questions, and do projects that help them understand how different subjects are related.

One of the best things about the flipped classroom in this situation is that it can help students understand ideas from different fields more thoroughly. Students often do not need help to understand and interact with complex information when taught in a traditional lecture-based way. On the other hand, the flipped model makes for more dynamic and engaging classrooms where students can work together on activities and talks to explore and use what they have learned (Herreid and Schiller).

The split classroom also helps students think critically, which is very important for future teachers. The model makes students think critically about what they have read by making them work on it on their own time before class. This way, they are ready to talk and question ideas in class. This is especially important in a class like Understanding Disciplines and Subjects, where students must look at and combine knowledge from different fields to fully understand the subject (Bishop and Verleger).

### **Challenges**

To use the flipped classroom, you need access to solid technology, like digital devices and high-speed internet. (O'Flaherty and Phillips) say this can make

it hard for some students, especially those from low-income families, to participate in events before class fully.

Course materials and tasks must be completely redesigned to use the flipped classroom model effectively. (Bishop and Verleger) say that teachers must make interesting pre-class materials and tasks that help students learn and use what they have learned.

Ensuring students continuously work on things before class can be challenging. If teachers prepare well, in-class tasks might improve, leading to smooth learning outcomes (Abeysekera and Dawson).

Changing assessment methods to work with the flipped classroom approach can be complex. Teachers must develop ways to test students accurately to show how well they understand what they learned before class and how well they can use it during class tasks (Herreid and Schiller).

The incorporation of flipped classroom pedagogy in teacher education, especially in the course 'Understanding Disciplines and Subjects,' requires the use of strong evaluation strategies. The assessment strategies must be in accordance with active learning principles, making sure that students delve into course content in depth and use theoretical concepts in real-life situations.

Formative and Summative Assessments  
Assessment in flipped classrooms is generally segmented into formative and summative assessment to measure students' learning holistically.

### **Formative Assessments**

Formative assessments aim to offer continuous feedback to both the students and instructors. They comprise

- Short pre-class quizzes assist in checking students' comprehension of pre-assigned reading materials.
- One can use websites like Moodle or Google Classroom to test students' thoughts and involvement in the pre-recorded lectures and readings.
- Students are able to graphically depict key concepts in pre-class materials and be tested on their comprehension and synthesis.
- Students judge the work of other students with

the help of rubrics to develop critical thinking and collaborative learning.

- Quick feedback or comments following in-class exercises determine students' understanding of topics.

### **Summative Assessments**

Summative assessments capture the general impact of learning as well as memory. They are comprised of Summative tests reflect the overall effect of learning and also memory. They consist of

- The students plan lessons or projects with interdisciplinary viewpoints to prove discipline and subject matter knowledge.
- Oral presentation and formal debates help to gauge the student's capability to describe and defend their knowledge.
- Portfolios are compilations of ideas, assignments, and projects that illustrate learning over a semester.
- Instead of depending on memorization, application-based items assess reflective and analytical abilities.
- Students study actual learning settings due to their understanding of the construction of pedagogies and disciplines.
- A range of computer-based tests are incorporated into flipped classroom models, such as learning management systems (LMS): Moodle, Blackboard, and Google Classroom are some examples of LMS software that provides features such as interactive tests and automated grading.
- Kahoot! and Quizizz applications bring assessment alive and engaging.
- Monitoring the progress and participation of students with the help of data analytics helps intervene in ways suited to under-performing students. Assessment of students' learning within a flipped classroom for 'Understanding Disciplines and Subjects' calls for an integration of formative and summative assessments complemented with the use of technology.

Evaluation of student learning in a flipped classroom for 'Understanding Disciplines and Subjects' requires a mix of formative and summative evaluations, supported by technology. These

methods ensure that students not only comprehend theoretical concepts but also apply them effectively in learning settings, resulting in enhanced learning and pedagogical innovation.

### Opportunities

Students are encouraged to participate actively in their education by implementing the flipped classroom concept. Making in-class time more interactive makes students more likely to understand complex ideas and be interested in the course material (Bergmann and Sams).

The flipped classroom pushes students to work on material outside of class, which helps them learn on their own and think critically. This greatly helps in classes like Understanding Disciplines and Subjects, where students must combine and examine data from many different areas (Strayer).

Students are encouraged to collaborate on projects and conduct discussions that enhance their understanding of ideas from other fields under the flipped classroom model. This collaborative method helps prepare future teachers for what it is like to teach in diverse, cross-disciplinary classes (Herreid and Schiller).

The flipped classroom approach gives students more freedom by letting them work on lessons at their own pace. This can be especially helpful for students who need more time to understand complex material because they can review material they learned before class whenever necessary (Abeysekera and Dawson).

### Conclusion

Over the past few years, schools that train teachers have used several new teaching methods, such as the flipped classroom idea. These are the kinds of schools where learning about and getting good at many different subjects is very important. It might be hard to accept this paradigm, even though it has much potential. Several topics are covered in this piece, such as how important it is to teach well, how important it is to keep students interested, and the problems that using technology might cause. The idea of a flipped classroom has become very famous over the past few years, and it helps future teachers who need to learn more about many things. Today's technology is a good choice for reaching this goal

because it makes it easy for students to work together, encourages them to think critically, and gets them involved in the learning process. When people who want to become teachers learn, the flipped classroom method might improve their experience.

### Specific Guidelines to Teacher Educators

To ensure proper implementation of flipped classroom, the following are kept in mind by teacher educators

- Ensure videos, reading, and interactive material are short, stimulating, and linked with learning outcomes.
- To increase learning, teachers should organize discussions.
- Offer support and further support to students needing independent learning support.
- Apply formative assessment and student reflection to inform changes to instructional practices and maximize engagement.
- Offer ongoing teacher training in technology tools, active learning techniques, and flipped classroom best practices.
- Continue being flexible and adjusting content delivery and assessment approaches according to students' feedback and learning results.

This is done so these people can get the information and skills they need to succeed in today's schools. In order to reach this goal, it is important to not only be a part of the careful planning process but also to offer help when it is needed.

### References

- Abeysekera, Lakmal, and Phillip Dawson. "Motivation and Cognitive Load in the Flipped Classroom: Definition, Rationale and a Call for Research." *Higher Education Research & Development*, vol. 34, no. 1, 2015, pp. 1-14.
- Bergmann, J., and A. Sams. *Flip Your Classroom: Reach Every Student in Every Class Every Day*. International Society for Technology in Education, 2012.
- Bishop, Jacob, and Matthew A. Verleger. "The Flipped Classroom: A Survey of the Research." *120th ASEE Annual Conference & Exposition*, 2013.

- Gaindo-Dominguez, H. "Flipped Classroom in the Educational System: Trend or Effective Pedagogical Model compared to Other Methodologies." *Educational Technology & Society*, vol. 24, no. 3, 2021, pp. 44-60.
- Herreid, Clyde Freeman, and Nancy A. Schiller. "Case Studies and the Flipped Classroom." *Journal of College Science Teaching*, vol. 42, no. 5, 2013, pp. 62-66.
- O'Flaherty, Jacqueline, and Craig Phillips. "The Use of Flipped Classrooms in Higher Education: A Scoping Review." *The Internet and Higher Education*, vol. 25, 2015, pp. 85-95.
- Strayer, Jeremy F. "How Learning in an Inverted Classroom Influences Cooperation, Innovation and Task Orientation." *Learning Environments Research*, vol. 15, 2012, pp. 171-93.

#### Author Details

**Pramila Ramani**, Assistant Professor, Central University of Tamil Nadu, India, **Email ID**: pramilar@cutn.ac.in

**Dr. S. Padmini**, Assistant Professor, Central University of Tamil Nadu, India