

# Effect of Flipped Learning Strategy on Problem Solving Ability and Achievement in Mathematics of Secondary School Students

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**Abstract:** *This study aims to test the effect of the flipped learning strategy on the problem solving ability and achievement in mathematics of secondary school students. Therefore, an experimental method is used for the study. Flipped learning is an educational approach that reverses the conventional notion of classroom-based learning so that students are introduced to the learning material before class. Class time is then used to deepen understanding through discussion with peers and facilitate problem-solving activities by teachers. This study aims to test the effect of the flipped learning strategy on the problem solving ability and achievement in mathematics of secondary school students. Therefore, an experimental method is used for the study. Through the study, the investigator arrived at the conclusion that Flipped Learning Strategy is more effective than the Existing Activity Method in enhancing Problem Solving Ability and Achievement in Mathematics at Secondary school level.*

**Keywords:** Flipped Learning Strategy, Problem Solving Ability, Achievement,, Mathematics

## 1. Introduction

Education prepares future generations to play their respective roles in society, and teachers play a vital role in this. A successful teacher is one who welcomes new ideas, tries to understand, interpret, explain them and develop practical ways for adapting and applying valuable ideas from each neighborhood. The creative talents, intuitiveness and originality of the teacher thus play a role in all the adventurous innovations that are so necessary for the educational process.

Mathematics is a core subject in our education system in both primary and secondary levels. The Kothari National Education Commission recommended that every student study mathematics for ten years. There is no disagreement about the need to teach mathematics as part of general education. By studying mathematics, the individual becomes a social and useful citizen and an efficient attempt to complete any kind of professional and professional course.

This study has been designed to investigate the Effect of Flipped Learning Strategy on Problem Solving Ability and Achievement in Mathematics of Secondary School Students. The investigator adopted Pretest Posttest Non – equivalent Group Design. The sample includes 74 students from two classes of standard IX of S.S.O.H.S.S.Lakkidi, Palakkad, Kerala.

The investigator prepared Problem Solving Ability test and Achievement test in Mathematics for collecting data pertaining to Problem Solving Ability and Achievement in Mathematics of Secondary School Students. The details of the study are summarized as following headings.

The study is entitled “**EFFECT OF FLIPPED LEARNING STRATEGY ON PROBLEM SOLVING ABILITY AND ACHIEVEMENT IN MATHEMATICS OF SECONDARY SCHOOL STUDENTS**”.

## 2. Methodology

The investigator adopted experimental method for the study. The experimental study attempted to inquire into the Effect of Flipped Learning Strategy on Problem Solving Ability and Achievement in Mathematics of Secondary School Students. The investigator adopted Pretest Posttest Non – equivalent Group Design for the present study.

## 3. Result and Discussion

The study intended to measure the effect of Flipped Learning Strategy on Problem Solving Ability and Achievement in Mathematics of Secondary School students. It was found that Flipped Learning Strategy enhanced the Problem Solving Ability and Achievement of students. The result of the study reveals the following educational implications.

- The study proved that the Flipped Learning Strategy is found to be appropriate and suitable for enhancing Problem Solving Ability and Achievement in Mathematics hence, it is recommended that teachers can incorporate Flipped Learning Strategy in their classes so as to improve Problem Solving Ability and Achievement of students.
- Flipped Learning Strategy facilitates learning in the classroom by encouraging students to improve their divergent thinking, transfer of learning.
- Flipped Learning Strategy assist student’s acquisition of knowledge and problem solving.
- Students use representations to help them understand the problem situation and to Evaluate the students.
- Flipped Learning Strategy develops the creative thinking in pupils.
- The new strategy can be change children as better problem solvers.

- Flipped Learning Strategy is seen more effective and interesting to the students, thus students are motivated and encouraged to learn more.
- The study revealed that Flipped Learning Strategy provides opportunity to different angles of a single knowledge.
- It improves the students scientific intelligence and thinking ability.
- This strategy supplements other activity oriented methods.
- This strategy helps students to understand the complex scientific concepts easily.
- The general Problem Solving Ability prepared by the investigator may be implemented in the class room to assess the level of Problem Solving Ability of pupils which will help to teachers to know which component of Problem Solving Ability should be given more importance in each topic.
- This approach is used to develop meta-cognitive ability.
- Flipped Learning Strategy could be included in training programmes for both pre-service and in-service teachers so as to develop an understanding of this strategy.
- Flipped Learning Strategy foster mental processes and skills related to problem solving.
- To develop original abilities of problem solving, students should be made to realize that there is more than one way of solving a single problem.
- Students should work out different problems on the same concept using different intellectual ways.
- Different problems require different pattern of thinking, different styles of solving abilities from the part of problem solver.
- Findings proved beyond doubt that Flipped Learning Strategy will increase student's Problem Solving Ability and Achievement in Mathematics. Hence it is suggested implementing Flipped Learning Strategy in teaching learning process.

#### 4. Conclusion

The study was intended to measure the Effect of Flipped Learning Strategy on Problem Solving Ability and Achievement in Mathematics of Secondary school students. The findings of the study revealed that this strategy is effective for enhancing Problem Solving Ability and Achievement in Mathematics and is hoped that the result of the study would be helpful to all those who are concerned with the field of education. The investigator would be satisfied if the findings of the study would lead to better understanding of the teaching learning process and help students to learn in a more natural and meaningful way. Through the study, the investigator arrived at the conclusion that Flipped Learning Strategy is more effective than the Existing Activity Method in enhancing Problem Solving Ability and Achievement in Mathematics at Secondary school level.