

# The Effect of Flipped Classroom Model on Student's Academic Achievement

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## ABSTRACT

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The purpose of education is not only to make students literate ,but also to make them creative and knowledgeable. The Flipped classroom model by initial learning at home and then spend working with peers for collaborative setting. Recent technological strides has enabled it . The present study is divided in five parts viz. Introduction, Review of Literature, Research Design, Analysis of the results and conclusion. The basic tenet of the study is whether flipped classroom model performs better than the conventional method. This statistical study conducted on two group of 15 students each by flip and conventional methos. The statistical result shows better performance of flip method.

**Keywords :** Flipped Classroom Model, Experimental Method, Innovation in Education.

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### Introduction

The purpose of education is not only to make students literate ,but also to make them creative and knowledgeable. The success of the student depends on the innovative methods introduced by teachers . This paper addresses one of such innovative method namely flipped learning.

The paper is divided in five parts . part A deals with Introduction. Part B reviews the Literature. Part C is related to Research design, Part D presents analysis and results and lastly part E is conclusion and limitation of the study.

In flipped classroom model the traditional practice of spending time for direct instruction in class and doing homework related activity is “flipped “ or replaced by initial learning at home and then spend working with peers for collaborative setting. Recent technological strides in the field of communication has enabled learning manage-

ment system. You Tube is one such learning device. (Pink 2010)

Flipped learning is a pedagogical approach in which direct instruction moves from group learning space to individual learning space and the resulting group space is transformed into a dynamic interactive learning environment. Here , the educator guides students as they apply concepts and engage themselves for creativity in the specific decipline.

### The four pillars of F-L-I-P are

#### F- Flexible Environment

Flipped learning allows for a variety of learning models. The educators often physically rearrange their learning spaces to accommodate a unit or a lesson. They also support either group work or independent study. They also create flexible spaces in which students choose when and where they want to learn.

## **L-Learning Culture**

In the traditional teacher centred model, the teacher is the primary source of information. By contrast, the flipped learning model deliberately shifts instruction to a lecture - centred approach, where in-class time is dedicated for exploring topics in greater depth and creating rich learning opportunities. As a result, students are actively involved in knowledge enhancement, as they participate and evaluate their learning in a manner that is personally meaningful.

## **I- Institutional content**

Flipped learning educators continually think about how they can use the flipped learning model to help students develop conceptual understanding as well as procedural fluency.

## **P - Professional Educator**

The role of a professional educator is even more important and more demanding, in a flipped classroom than in a traditional one. During class time they continually observe their students, providing them with feedback at the spur of the moment along with assessing their work. Though professional educators visibly take a less prominent role in a flipped classroom, they remain the essential ingredient that enables flipped learning to materialize.

## **Review of Literature**

In recent years, the flipped classroom has become one of emerging technologies in education and it can be standard of teaching-learning practice to boost student's active learning in higher education. (Hamdan et al. 2013). The flipped classroom is an approach to teaching and learning activities, where students watch a video lesson outside the class through distance learning and have hand-on activities in the class.

conducted a study to uncover the benefits of the FC model for pre-service teachers, its impact on

students success and the difficulties of the model. It was observed that learners were more productive and enthusiastic to participate in flipped lesson. (Ray & Powell 2014)

FC learning environments can also contribute to teacher's pre service learning skills and affective development, specially by creating a meaningful and authentic context for learning. (Graziano 2017)

The development of the concept of flipped learning is of recent origin. However certain contributions are worth reviewing.

Baepler et al (2014) applied the flipped classroom model to a chemistry class and investigated the effect of decreasing the seating time inside a conventional amphitheatric lecture hall. The findings of the study showed that learning outcomes were achieved by students, at least as good as in the traditional classroom.

Hung (2015) examined the possible impacts of flipping the classroom on English language learners academic performance, learning attitude and participation levels. Three different formats of flipped teaching were applied, than it was found that the structured and semi structured flip lessons became more effective than the non flipped lessons.

Chang and Huang (2018) regarded the main value of flipped classroom as changing class hours into the form of a workshop and having student test their application knowledge through enquiry and mutual discussion. Hence, teachers became coaches or consultants encouraging students to participate in group discussion. Therefore flipped learning could better enhance student's learning motivation and attitude than traditional teaching.

## **Objectives**

To compare the group taught through flipped classroom model and traditional teaching strategy on achievement in science subject (Biology).

## Hypothesis

In the present study the following hypothesis is presumed.

- H<sub>01</sub> There is no significant difference in the pretest scores of experimental and control group on achievement test on topics in science (cell structure and function)
- H<sub>02</sub> There is no significant difference in the post test scores of experimental and control groups on and achievement test on topic in science (cell structure and function)
- H<sub>03</sub> The performance of flipped classroom model will be higher than that of conventional teaching strategy in science

## Sample

The present study was conducted on preservice teachers (B.Sc and B.Ed I year) .A random sample of 30 students. The study was conducted on two intact viz . one is experimental group and other is control group.

## Procedure

After selection of the sample and allocation of

students to the two institutional structure studies the accident was conducted the experiment was conducted in 4 phases . Firstly students were randomly assigned to control and experimental group.

Secondly the pretest was administered to the students of experimental and control group. Thirdly one group was taught through flipped class room model and control group was taught through traditional teaching strategy by the investigators. Fourthly , the post test was administered to the students of both the groups.

## Analysis and Interpretation of Result

In this study the pre test post test design has been used. It is one of the most used method in research ,involving experiment studies

The pre test and post test is," by far the simplest and most common of the pre test -post test designs, and is a useful way of ensuring that an experiment has a strong level of internal validity. The principle behind this design is relatively simple, and involves randomly assigning subjects between two groups, a test group and a control. Both groups are pre-tested, and both are post-tested, the ultimate difference being that one group was administered the treatment."

Statistics	Control pre test Control post test	Experimental pre test Experimental post test	Control pre test Experimental pre test	Control post test Experimental post test
Mean Difference	0.43	2.53	0.33	3.33
Standard error of difference odmeans	1.37	1.99	1.30	2.26
Calculated t value	0.78	3.23	0.58	4.14
Two tail p value	0.44	0.0031	0.56	0.0002
Interpretation at 0.05 significance level	Difference not significant	<b>Difference is significant</b>	Difference not significant	<b>Difference is significant</b>

The advantage of this method is that it takes care of experimental noise and also shows the effect of confounding variables. By randomization it has been assured that the criteria of internal validity has been satisfied.

In this study 30 students were selected on random basis and further divided in two groups for control and experimental group . They were given pre test and post test. The statistical results are in the following Table.

The first null hypothesis is not rejected . It implies that the level of pre test of control and experimental test was not statistically different.

The second null hypothesis is rejected implying that the level of achievement was significantly different and in favour of experimental group.

The third null hypothesis states that the performance of flipped classroom model will be higher. This is not rejected. This is further accentuated by the two test which show that there was no significant difference in pre test experimental and control group Control pre test Control post test.

### **Conclusion and Limitation of the Study**

The study started with the preposition whether the Flip Classroom Model is a better approach than the conventional one. This presumption has been vindicated . It may enhance the scope of education to new vistas. Its recent development in the light of self study, online classes along with

experimentation, collaboration between peers group, students cooperation for common projects are some of the avenues inherent in future adoption of the technique.

Overall the flipped classroom model has shown its better performance.

The limitation of this study is that the sample size is small and if the experiment is repeated for many subjects and more classes and more faculties , the result may be generalized.

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