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**Comparison of effectiveness of flipped classroom  
learning over regular classroom learning in the  
department of pathology**

**Dr. Kruttika Naik**

**Abstract**

The flipped classroom is defined as shifting direct learning out of the large group learning space and moving it into the individual learning space, with the help of one of several technologies. This study puts in an effort to find the effectiveness of the flipped class room when compared to the regular classes.

**Keywords:** perception score, flipped, classroom, classroom

**Introduction**

The regular class room is when the teacher and the student share the same time in the classroom and can be somewhat compared to a cohort. But the flipped classroom is learning at different set of time. The students retrospectively reads and then the classroom teaching is held <sup>[1]</sup>. The flipped classroom is defined as “shifting direct learning out of the large group learning space and moving it into the individual learning space, with the help of one of several technologies” <sup>[2, 3]</sup>. Classroom time is spent in discussion, clarification, exercises, or other learning activities to enhance application of knowledge <sup>[3]</sup>. This method is implemented in the Medicine, Dental and other Allied courses <sup>[4-10]</sup>. This study puts in an effort to find the effectiveness of the flipped class room when compared to the regular classes.

**Aims and Objectives**

To find the effectiveness of the flipped class room when compared to the regular classes.

**Materials and Methods**

The study was done from October 2018 to April 2019.

**Design** – Educational intervention will be done by flipped classroom for 6 hrs of lecture in one month duration and performance of the students are compared for two methods along with the perception.

**Subject** - Students of MBBS Phase -II will be enrolled into the study after obtaining informed consent excluding the students who don't give consent for the study.

**Sample size** – 150 students of MBBS phase II who are willing to participate.

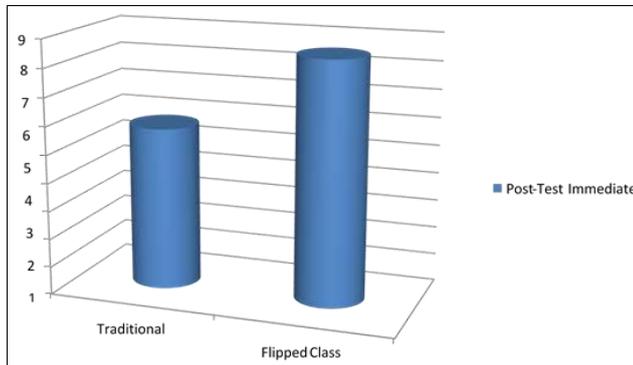
**Methodology:** They will be equally divided into two groups by lottery method. One batch will go for traditional lecture classes and the other will be taught using flipped class model. Lecture classes will be taken in six sessions by the researcher. Three sessions are with flipped method (topics given prior to the lecture by power point presentations) and three sessions are regular lectures. After every lecture class the after every lecture class the MCQ test of the students will be taken. The means of the scores will be noted. The mean of all the scores after all the three sessions will be calculated and reported. The exams will be conducted once again after fifteen days and again the mean scores will be calculated

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## Results

**Table 1:** Independent t test to compare test scores between the two groups immediately after the intervention

	Group	N	Mean	Std. Deviation	P Value
MCQ	Traditional	75	5.63	2.2	<0.001
	Flipped class	75	8.1	1.6	



**Graph 1:** Mean scores of test scores

## Discussion

In the ensuing 100 years, the volume of medical knowledge has exploded, the complexity of the health care system has grown, pedagogical methods have evolved, and unprecedented opportunities for technological support of learners have become available. Yet students are being taught roughly the same way they were taught when the Wright brothers were tinkering at Kitty Hawk. It's time to change the way we educate doctors <sup>[11]</sup>.

This approach was first used in the 1990s in elementary and secondary education and was referred to as the "classroom flip" by Baker (2000, p. 9), who also coined the "guide on the side" as compared to the "sage on the stage," which is now the mantra of those who espouse this method of teaching <sup>[3]</sup>.

As class attendance, students' learning, and the perceived value of the study increased following participation in the flipped classroom, the authors conclude that this approach warrants careful consideration as educators aim to enhance learning, improve outcomes, and fully equip students to address 21st-century health care needs <sup>[12]</sup>.

When the students are engaged in actively processing information by reconstructing that information in such new and personally meaningful ways, they are far more likely to remember it and apply it in new situations <sup>[13]</sup>.

In a study conducted by Collen McCabe *et al.* <sup>[14]</sup>. The response rate for the pre-test for the traditional course group was 34% (54/159) and 33% (26/78) for the flipped experiential group. The pre-test knowledge assessment scores were significantly higher in the traditional class teaching group when compared to the flipped experiential group. For post-test knowledge assessment scores, there was a significant effect ( $p < 0.001$ ) with the traditional course receiving higher post-test scores than the flipped experiential group.

## Conclusion

The flipped classroom teaching is perhaps the clear winner. It has been proved to be effective in attaining the desired result.

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