

Perceptions regarding Flipped Classroom teaching method among first year MBBS students in a Medical College in National Capital Region, India

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Abstract

Background: Flipped classroom aims at exposing the students to teaching material outside of class first and utilizing the class time in deeper understanding of the topic with the discussion in the presence of the teacher. It is a method of teaching learning wherein the students take responsibility of their learning. The present study was conducted to introduce flipped classroom approach as teaching learning method and to obtain students feedback.

Materials and method: The study was descriptive study done in the Department of Anatomy after obtaining the IEC clearance. First year MBBS students who volunteered to participate (138 out of 150) were included in the study after obtaining informed consent. The students were given a pre-class reading material in form of PowerPoint Presentation with voice over for the topics selected for flipped class using Institutional Learning Management System (LMS) seven days before the class. Class time was utilized in discussion of the topic. A questionnaire was used which was validated by other faculty members. Responses were collected using a 5 point Likert scale. Analysis was done by Microsoft Excel 2010.

Results: The concept of flipped classroom was well accepted by the students. It was observed that 70% of the students found flipped classroom is more interesting method of learning anatomy compared to traditional lectures. 30% of the students believed flipped class required more time and more preparation. They were of the view that these classes were more interesting, interactive, and motivated them to learn compared to the didactic lectures.

Conclusion: Flipped classroom is not a new concept. However, in our country this concept of teaching learning is not very commonly used in medical colleges and can be used as an alternative to the traditional lectures for better understanding of the topic and can be used more often.

Keywords: Flipped classroom, Medical College, MBBS.

Introduction

Didactic lectures are the most common teaching

learning method used in most of the medical colleges. This is one way method in which students are at the receiving end. Too much interaction with the students

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is not possible due to time constraints. It is difficult to meet the needs of all the students by the faculty members. Also, with the new CBME curriculum for MBBS number of didactic lectures is reduced to one third. Hence, introduction of some different teaching learning method is required wherein there is active involvement of the students. Flipped classes or inverted classes is the reversal of traditional didactic lectures wherein the students are given some learning materials, prepared videos or recorded lectures and are asked to come prepared with the topic so that class time can be utilised in more discussion and interaction for better understanding.¹ This concept was made famous by Eric Mazur. He said that the process is three times more useful to the students in understanding the topic and the approach is more interactive focusing on the students.² Flipping is an effort to engage students in active learning, in which learners needs to be responsible about their learning.³ The flipped classroom approach was used in different courses from many years now. It is recently introduced for medical teachings.⁴ Flipped classroom is an effective teaching-learning method stated by Bergmann, Overmyer and Wilie⁵. There is more constructive learning in the class timing (Tucker)⁶. These classes help in creating students who can be self-directed learners (Minhas, Ghosh and Swanzey)⁷. Zappe et al⁸ stated that the Flipped classes will help student utilize their time in a better way. Hamdan et al⁹ stated that flipped classroom results in motivating the student to learn better. Cohen and Brugar¹⁰ stated that learning becomes the responsibility of the students. Learning can be at their pace. There is also establishment of more communication between the teacher and the students. According to Schmidt and Ralph,¹¹ the students are better prepared for the classes. Among all the benefits there are some disadvantages also as stated by Collins¹². He said that applying new teaching learning module is a challenge even if one is well prepared. Other problem can be that the teacher is over enthusiastic, but the students are not reciprocating i.e., they attend the classes without doing the pre class assignment as stated by Rath¹³.

Anatomy is a pre-clinical subject taught in the first year of MBBS curriculum. Better knowledge of this subject is very helpful to the doctors in pursuing their clinical practices. It is considered as one the difficult

subjects of this curriculum. So, the need arises to implement some better teaching methods to help learn anatomy in a better way and flipped class can be an alternative to the regular traditional lectures. Flipped classes were used in different fields of education. The use of this method is limited in medical sciences. It is already known that it proves to be a better alternative to didactic lectures. With this background study was undertaken to introduce flipped classroom teaching to first year MBBS students in learning Anatomy and to obtain students feedback and their perceptions on acceptability of flipped classroom.

Materials and methods

The study was a descriptive cross-sectional study conducted in first year MBBS students. The project was conducted in the department of Anatomy after obtaining Institutional Ethical Committee (IEC) clearance. First year MBBS students of batch 2019-20 (138 out of 150 students) who volunteered to participate were included. Convenient sampling method was used for the study. Informed consent was taken. The students who did not give consent were excluded from the study. The volunteered students were sensitized to the concepts of flipped classroom. They were told about the way it was supposed to be carried out. It was expected from them to come prepared for the class. In class there will be discussion and small presentation on the topic. Any student can be asked to summarize the topic. The topics were selected from Gross Anatomy with clinical importance for flipped classroom. Few days before the scheduled class 4 one liner questions were given as an assignment as a reminder to read the topic before class.

Pre-Class Activity: The students were given a pre-class reading material (power-point presentation with voice over) prepared by the authors and validated by two senior faculty members of the department. The reading material was provided to the students by using institutional LMS (Learning Management System) one week prior to the class. The students need to read the given notes before attending the class.

In Class Activity: Class time was utilized in discussion of the topic. Students were asked to take a pre-test to see whether they have read the topic.

Topic discussed with the students on the principle of think pair and share. At the end of the class one of the students was asked to summarise the entire topic. Post-class test was taken. A questionnaire was used which was validated by other faculty members and MEU members. The feedback was obtained anonymously. The students were not asked to write their name and roll number. Feedback was obtained at the end of the session. The questionnaire was validated by senior faculty members in the Department and MEU members. Responses were collected using a 5-point Likert scale. Statistical analysis was done using Microsoft Excel 2010. The questionnaire was tested among a group of 10 students before administration.

There was a formative assessment taken a week after the flipped class. The result of this formative assessment was compared with the last batch who had traditional lectures on the same topic by the faculty members.

Results

The study group comprised of 138 students.

Table 1: Students opinion about Flipped Class Room Teaching Method

S.No.	Questions	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	FC is more interesting method of learning Anatomy compared to traditional lecture	7	2	32	77	20
2	FC increased my participation in the class	3	13	19	85	18
3	FC motivated me to read more about the topic	3	8	19	81	24
4	FC helped in better understanding of the topic	5	8	23	66	33
5	FC helped in better retention of the topic	5	8	35	63	27
6	FC should be more often used in other topics in Anatomy	7	20	29	61	18
7	FC requires more time to understand and learn.	6	53	38	35	6

Results were expressed in percentage and frequency. For the open-ended questions, all the views were noted. It was observed that the newer method of teaching learning was well accepted by the students. 138 students out of 150 participated in the study. Feedback obtained after flipped classroom session showed that 70% of the students found flipped classroom is more interesting method of learning anatomy compared to traditional lectures. 71% of the students felt that their participation in the class was increased. 76% of the students were motivated to read more about the topic. 75% of the students felt that the topic was better understood. 64% of the students were of opinion that flipped classroom helped in better retention of the topic. 60% of the students recommended that more flipped class should be taken in Anatomy. However, 30% of the students believed flipped class required more time and more preparation. The results were summarised in the Table number 1 and Figure 1. The result of pre-test and post-test were analysed. There was improvement in the post-test score.

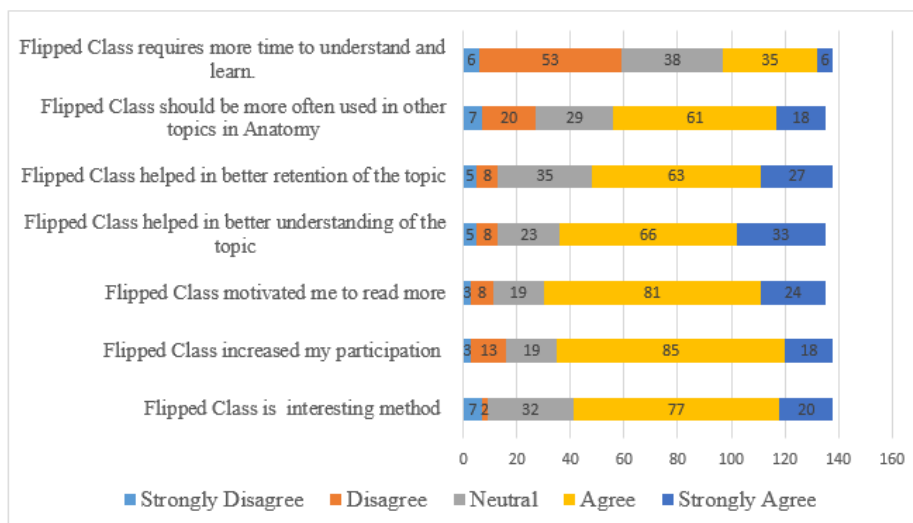


Fig 1: Students opinion about Flipped Class Room Teaching Method

There were open-ended questions as well in the questionnaire. The students were of the opinion that FC is a good way of learning a topic. The PowerPoint presentation provided was very useful. Initial reading and then attending the classes gave more idea regarding the topic. All the points were well covered in the discussion. Their doubts were cleared. The discussion helped them in retention of the topic. They liked the active participation and interaction during the class. They also believed reading the topic on their own increased their interest. After attending the FC, they were able to apply the knowledge gained in a better way in the dissection hall. They were able to

identify the structures with confidence. They wanted more topics to be covered in similar way. It should be done often. Few MCQ should be given at the end of the class. Clinical case scenario should be given and discussed in this way. Some students felt that some more time could have been given to read the materials given. It should be used for smaller topics and in small groups. Further difficult topics which requires deep understanding should be avoided to be taken as FC. Few students also suggested that individual doubt clearing session should be held after the classes.

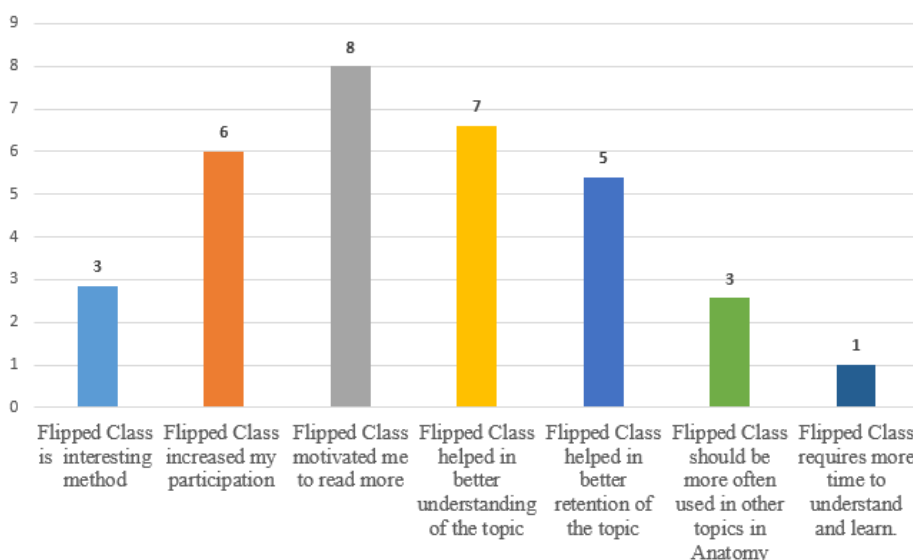


Fig 2: Ratio of Strongly agree/Strongly disagree about Flipped Class Teaching Method

Fig 2 represent ratio of Strongly agree/Strongly disagree about Flipped Class Teaching Method Students strongly agree 8 times more than strongly disagree to the fact that Flipped classroom motivated them to read more.

Discussion

In the present study, flipped classes were introduced to teach anatomy. Most of the students were of opinion that it is better than traditional lecture where there is one way delivery of the content. It is more interactive. This concept is becoming popular these days. Present day students are more tech savvy and prefer use of technology in teaching learning. Students believe that this method is more engaging and fun to learn a new topic. Also, with the introduction of new CBME based curriculum there is need to make our students self-directed life-long learner. Flipped class proves helpful in this. It is more learner centred. It helps the students in critical thinking¹⁴.

The result of the present study showed that it was accepted very well by first year MBBS students in learning Anatomy. This new concept of learning was appreciated by the students and the other faculty members. Their interaction and participation in the class was good. In the study conducted by Fatima et al¹⁵ it was observed that students felt that FC was very interactive and helped in depth understanding of the topic. The difficulty was in clearing of their queries and misconceptions. In the present study the perceptions of the students were somewhat similar.

Flipped classroom was accepted well in study conducted at Ripah University, Pakistan.¹⁶ Similar perception in the study by Sunita Sreegire et al (2018)¹⁷. Various other studies also had similar results. In the present study also, it was well accepted by our students. They wanted more classes to be taken as flipped class. Study by Nour¹⁸, S K Gubbiyapa et al¹⁹, Veeramani et al²⁰ found that student satisfaction was very high and flipped classroom was accepted as effective teaching learning tool. In their study 86% students felt that flipped classroom was a better approach to learning.

Maria Jose²¹ used this method of teaching learning during the pandemic time and reported positive affect of the method both on the motivation

and perception of learning. In the present study also, the students were motivated to learn more about the topic. Latorre-Coscolluela²² reported that the respondents liked the flipped classes because of their active involvement. The students who participated in the present study also liked the interactive session.

Agarwal and Kaushik²³ emphasised on use of videos, recorded lectures to start the discussion. Smith and Boscak²⁴ in their study observed that the students' satisfaction increased with the use of this module and the skills developed during the course is better.

Conclusion

FC was well accepted among students giving us indication for its further use not only in gross anatomy but also to some topics in embryology and neuroanatomy. FC can be implemented to other first year subjects and to other subjects in medical curriculum.

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Conflict of interest: None to declare.

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