



Flipping the classroom - Interactive way of learning Physiology

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ABSTRACT: Learning is a Physiological process. Various factors influence learning .It is essential to conduct the academic sessions for the students that they volunteer on their own rather than attending didactic lecture. Active participation of the students help them to build self-esteem. Working as group facilitates learning. The aim of this study is to evaluate students' perception of flipped classroom approach for endocrine Physiology and to assess the impact on their performance and attitudes. It is interesting to find that students developed trusting relationship and emotional support from the teacher for providing non threatening learning ambience. Overall improvement in performance also noted when compared to didactic lecture.

Keywords – Didactic lecture, Flipped class room, Learning, Perception, Physiology

I. INTRODUCTION

Didactic teaching sessions occupy a large proportion of the available teaching-learning time in medical courses. This form of teaching usually takes the form of a lecture delivered by an expert to a group of students. There is no interaction with teacher for students in such a session. The students' role is reduced to listening, recording or making notes, with little opportunity for questioning usually being relegated to the concluding minutes of such a session. The teacher is unable to meet the demands of each student during such a session. To address the needs of students by increasing active involvement led to the evolution of the "flipped classroom" or "inverted classroom" approach. In this model, the activities carried out during traditional class time and self-study time are reversed or 'flipped'. We conducted a study to assess the perception of first year medical students to an interactive session on endocrine physiology using the flipped classroom approach.

II. MATERIALS AND METHODS

Study was conducted on 184 1st MBBS students at GMC Guntur for a period of 2 months. The general lesson plan and learning objectives are declared prior to conduction of flipped class room method. The module consisting of two parts, the first, offloading content and the second, creating a learner centered classroom. For the first part, which involved individual learning as well as group discussion, study aids in the form of web sources related to physiology modules and relevant clinical text books are provided. The second part, the full course "learner centered classroom" was planned over two hours. Instructions to students -before class – 1. To Read the text book pages. 2. To watch the video related to the topic.3. To listen the lecture using the TAB supplied by Dr.NTR UHS, Andhra Pradesh. In class - Small group teaching - All the students were divided into small groups and activated by flipping the class and discussed in depth physiological mechanisms they found using their given knowledge. For each question they gathered the new points and maintained the time, not deviating from topic. The teacher played several roles as a planner, initiator of learning process, supplier of educational information and as an evaluator lead the class and regulated the progress of constructive inquiry about the physiological mechanisms. After the class – Quiz was conducted.

Well designed questionnaire from basic to highest level and intervention is planned to use flipping of the class. Structured questionnaire collecting information on different aspects was formulated on the basis of literature review. The questionnaire distributed to the students for their responses to the flipped classroom approach. The perception of the students regarding this model of teaching and learning was evaluated by two short questionnaires. The first questionnaire was a closed set that had ten items, graded using the Likert's three-point scale with a score of 1=agree 2=neutral 3=disagree, was used to find out the rating from the students. In the second questionnaire answers to the open-ended questions also collected. Values are presented as number of responses to each statement (%).

III. RESULTS

184 students of 1st MBBS students answered to the questionnaire . Overall Response to Flipped class room method received higher rating.[TABLE 1; Fig 1]All aspects of Flipped class room method perception received marked response in which the aim of the study fulfilled.[TABLE 2;Fig 2]. The pre- and post- SEQ tests were designed specifically to test the declared learning objectives of the session. Mean score of the written test assessment after Flipped class room was higher than didactic lecture [TABLE 3;F IG 3].Analysis of data - compared the student pre & post assessment marks by Z test $Z = 3.26 > 1.80$, p value < 0.05

TABLE 1.OVERALL RESPONSE TO TEACHING METHODOLOGY

Didactic lecture	Flipped class room
8	92%

TABLE 2.STUDENT PERCEPTION TOWARDS TEACHING METHODOD

Response	Didactic lecture (n=184)	Flipped class room (n=184)
Interaction	14.1	78
Participation	34.2	71.4
Understanding	32.6	88
Application	32.6	94.5

TABLE 3.EVALUATION OF SHORT ESSAY QUESTION

Maximum marks (40)	Didactic lecture Mean ± SD	Flipped class room Mean ± SD
Marks obtained	21.3 ± 5.71	28.4 ± 6.42

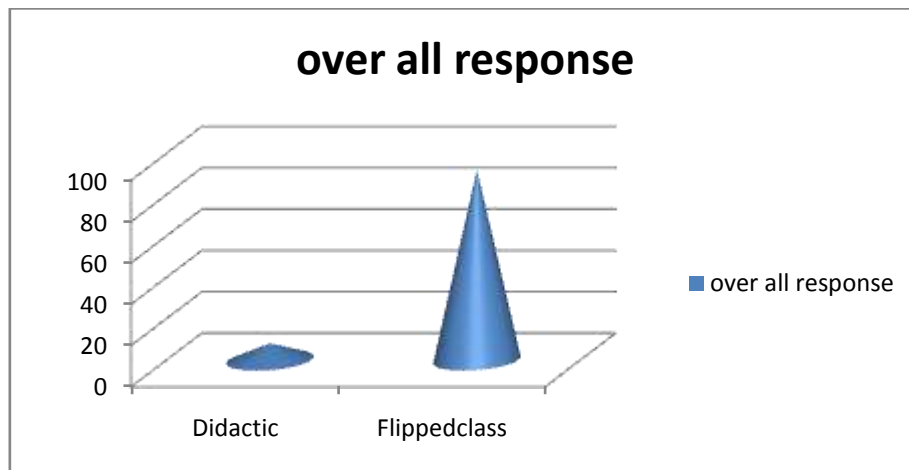


Fig 1; Overall response to teaching Methodology

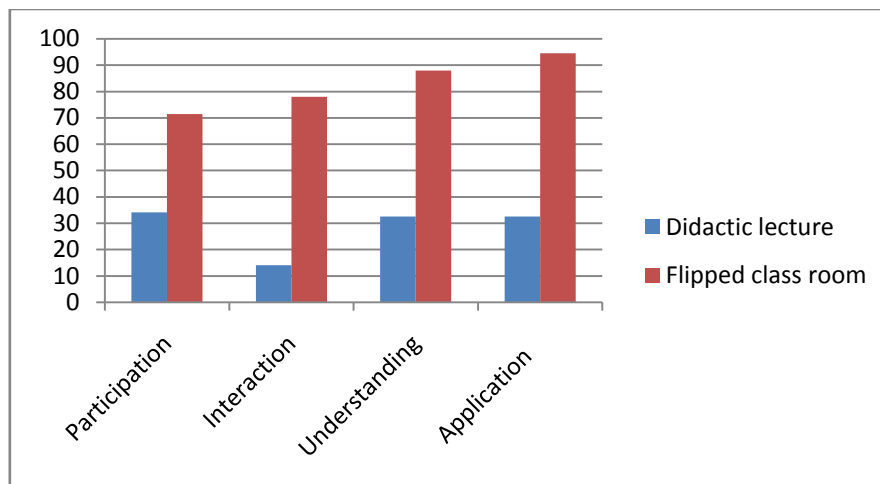


Fig 2; Students perception on various aspects towards Flipped class

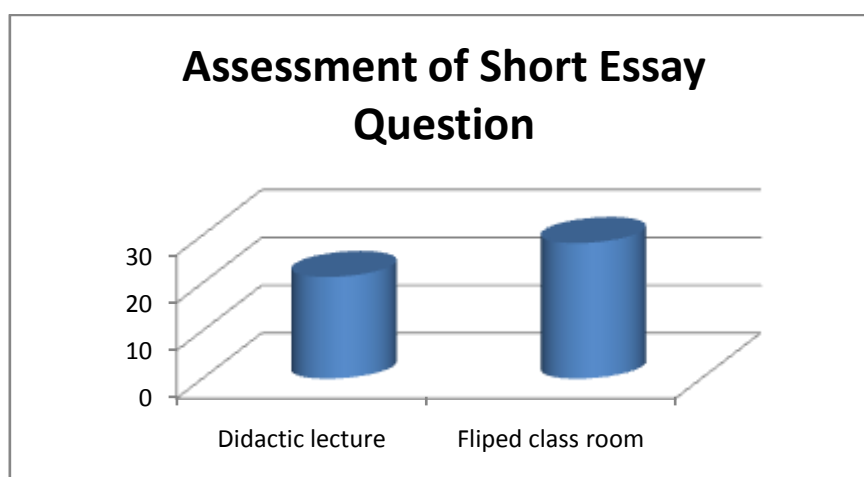


Fig 3; Evaluation of Short Essay Questions

IV. DISCUSSION

The flipped classroom method is a better tool to teachers for effective teaching. Flipped classroom reframes the role of the teacher in the classroom and helps move a classroom culture towards student construction of knowledge rather than the teacher having to tell the knowledge to students. Flipped class room is an effective model must be designed, assessed, managed to institute and to support the learning. At the beginning of the each session, all educational objectives were clearly defined. The worksheet given prior to the session was prepared with utmost care to understand the topic. The sources given in the worksheet such as references and web sources are made to create interest to read. The team based activity is engaging and interesting in comparison to traditional class and made learning more enjoyable. The Flipped classroom method is adapted to provide sufficient knowledge of physiological basis of disease. Time allotted for the classes were adequate for deeper understanding

V. CONCLUSION

To be innovative, Flipped classroom requires planning and must be paired with embedded reason to know the content. Flipped classroom creates the opportunity to meet the needs of students through various instructional activities and feel motivated. There is positive reinforcement and improvement in their performance .

ACKNOWLEDGEMENTS

I thank to all my students ,faculty members,and staff of the department of Physiology who participated in the study.

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