

Implementation of Interactive Teaching Learning Methods in large Group in Endocrine Pharmacology

Anshu Gupta^{1,*}, Karun Bhatti², Rani Walia³, Pallak Agnihotri⁴, Sandeep Kaushal⁵

¹Associate Professor, ^{3,5}Professor & HOD, ⁴PG Student, Department of Pharmacology, ²Assistant Professor, Department of Medicine, MMIMSR, MMU, Mullana, Haryana

ABSTRACT

Background: Didactic lecture promotes passive learning among students. To influence the listeners the teacher should inform, engage and entertain by using certain interactivities in the class. Interactive teaching learning activities promote active learning among students. Different strategies can be used in a lecture to involve and motivate the participants for effective teaching and learning.

Aim and Objectives: The study was conducted to implement interactive teaching learning methods in large group teaching and to analyze the perceptions of students regarding the same.

Methodology: One hundred and fifty students of 2nd Prof MBBS were enrolled after obtaining IEC approval and informed consent. After dividing them into two batches of 75 each, a total of 8 interactive sessions on 4 different topics of endocrine pharmacology were conducted. The students were exposed to the case based scenario, think pair and share, quiz and role play strategies of interactive teaching learning. A feedback proforma containing 12 items regarding the perceptions of students was recorded. The data was analyzed using descriptive statistical analysis.

Findings: A total of 137 (91%) students took the feedback regarding their perceptions of interactivities. Out of which 53 were males and 84 females. 75.2 % of the students strongly agreed it to be enjoyable. It helped the students to gain more knowledge, stimulated thinking (78%) regarding the topic. They were enthusiastic, motivated to take part in discussions.

Out of the entire interactivities quiz was the most preferred (36%) method of interaction.

Conclusions: The interactive teaching was found to be useful and feasible as adjunct to didactic lectures. Different activities of interaction during lecture are recommended for active participation, more attention, and motivation of students.

Key words: Interactive teaching, Case based Scenario, Quiz, Role Play

INTRODUCTION

Lectures in medical education are quintessential. Didactic lecture for one hour becomes monotonous after 15-20 minutes, as there is no involvement of students. It only promotes passive learning among students. Research has shown that traditional lecture method, where the teacher speaks and students listen, dominate the scene in most of the medical colleges, in India.^[1]

Interactive teaching involves interchange of ideas between teachers, students and the lecture content. There is lot of active involvement among the participants leading on to more effective learning.^[2] In conventional lectures students are passive receivers of information and therefore are not involved in process of learning^[3]. It is clear from the recent research that students need to be taught by interactive lectures and therefore it is not surprising that traditional information

imparting lectures are characterized by poor attendance rates^[4].

In medical education there is an immense need to move from traditional teacher focused, didactic teaching to more student focused methods that actively engage students in the learning process in order to better promote student successes and produce graduates with transferable skills.^[5] Lectures are less effective when instructional goals include application of knowledge, development of thinking and attitude.^[6] If properly planned and organized lectures can be very effective,^[7] and can clarify difficult concepts, motivate thinking, foster enthusiasm and motivate for learning^[3,7]. It is very important to develop and implement ways of teaching that can simultaneously serve large number of students while more actively engaging them in learning process.

Various methods that can be used in a large group for interactive teaching are: Question Asking and inviting questions, Think pair and share, brainstorming, case based examples, role playing, demonstrating, problem solving, directed listening, pre and post testing etc.

The present study was being conducted to implement interactive teaching methods in pharmacology teaching of MBBS Students.

AIM AND OBJECTIVES

Aim: Interactive teaching promotes active learning among students.

Specific Objectives:

1. Implementation of interactive teaching learning methods in endocrine pharmacology.
2. Perceptions of the students for interactive teaching learning

METHODOLOGY

Design: A Cross sectional study was carried out with 150 MBBS Second Professional students (Paraclinical year; IV Semester; 2013 Batch) by the department of Pharmacology, MMIMSR, MMU, Mullana. After obtaining the permission from the head of the Department and the Institutional Ethics Committee, the faculty and postgraduates of Pharmacology were sensitized to the concept of interactive teaching and the proposed methods of intervention.

Planning: After obtaining valuable inputs from the faculty involved in medical education unit of our institute a series of interactive lessons with different interactivities at the appropriate interval of lecture were planned.

Participants: After obtaining the oral consent, students were divided into two groups of 75 each as per their practical classes (i.e. Group A and B), they were re-divided into a group of 4 from 15-20 students each based on their 1st professional result percentage to have similar level of performance. (Consort Annexure III)

Interactive Sessions: Concept of various interactive strategies to be used, were explained to the students initially.

Structured eight interactive sessions on a topic were undertaken (after the topic covered in a didactic lecture) on both the batches of 75 students each.

During the course of session, various interactive teaching learning methods i.e. quiz, case based scenario, think pair and share, and role play on a topic were introduced in the lecture series in an appropriate sequence.

The sessions consisted of a

- **Quiz:** The sessions started with a quiz consisting of four questions one to each group. Sufficient time was given to respond. If the group members failed to answer the correct response the question was shifted to the next group.
- **Case based scenario:** One case based scenario on the topic was administered to the group and students were asked to make the diagnosis and provide the treatment on the basis of the case.
- **Think pair and share:** The student had to think about the task given then share with the student next to and then discuss in the whole group. Appropriate time was given to them. It allowed them to discuss each other's idea and correct each other.

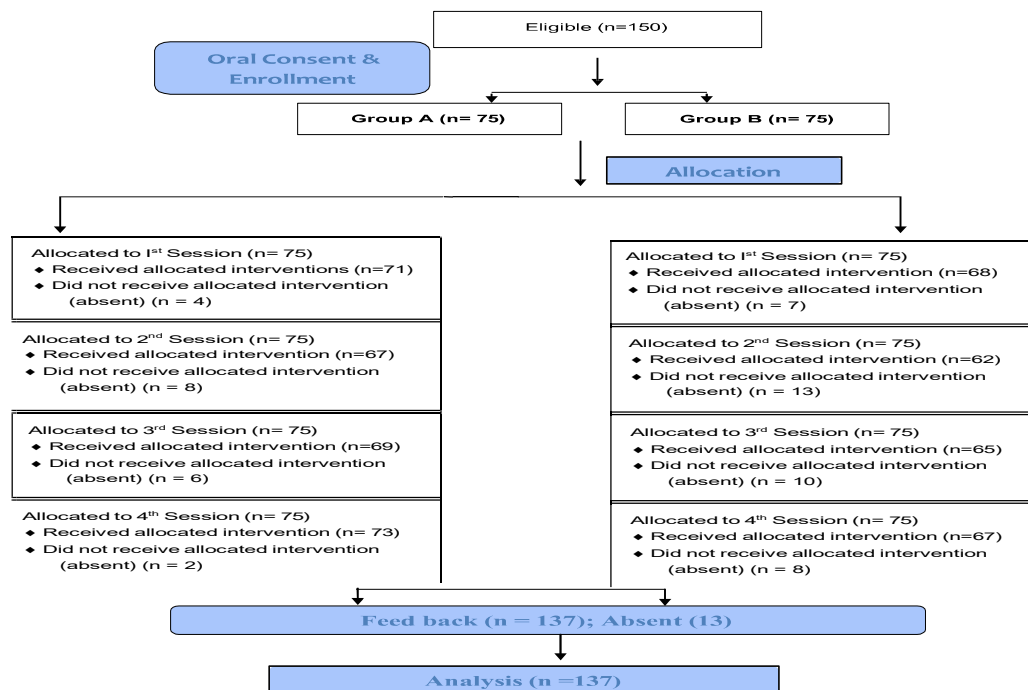
- **Role play:** The students played different roles which were assigned to them 3 days before hand, the interactive sessions. Affective domain such as communication skills, demonstration of proper technique, counseling and explanation on prognosis as in real set up with the patient were exhibited.

Student Feedback: At the end of all sessions a 12 item questionnaire was administered to all the students regarding their perceptions on interactive teaching in endocrine pharmacology. It consisted of both close and open ended questions. One item is a negative question.

Data Analysis: The data collected was analyzed for Descriptive Statistical Analysis using Microsoft Excel 2010.

All likert survey responses (1-5) were categorized into either positive (strongly agree, agree) and negative responses (neutral, disagree & strongly disagree). The data is represented as proportions and represented in the form of tables and charts.

Annexure III- Consort Statement



OBSERVATIONS AND RESULTS

The results of the study are as under:

The feedback form to the students was distributed and a total of half an hour was given to fill the form. A total of 137 (91%) students took the feedback as 13((9%) students were drop outs as absentees. The total number of males is 53 (38.7 %) and females are 84 (61.3 %). All the students are in the age group of 19-22 years.

The perceptions of the students regarding the design and utility of the sessions on various topics of endocrine pharmacology are given (**Table I**) (**Fig. I**). Responses are surveyed on likert scale from 1-5.

During the session the students were enthusiastic to actively participate in the discussions. Most of the students were motivated and felt encouraged to discuss the topic among themselves and with the teacher. Seventy six percent could co relate the activities relevant to medical practice.

The overall presentation on the scale of (1-10) of the sessions was rated above 7 by 64.2 % of students. Between 5 and 7 was rated by 29.8% of the students whereas 6% rated it below 5.

Eighty three percent of the students were of the view that the interactive lectures help them best to develop a suitable learning style for a particular topic. The activities were found to be well organized, content covered was clear and relevant to the course.

Of all the four, the most preferred method of interaction was quiz followed by role play, case based scenario and think pair and share. (Fig. II)

Views of students regarding different activities

According to some students quiz helps to promote positive competitive spirit, more interaction with teacher, immediate feedback of their answer.

Role play helps to rehearse interaction with the patients, it is useful for motivating patients for treatment, counseling, explaining the prognosis of the disease. It also promotes decision making in real settings. Students enjoyed it while performing different roles. Few found it a new innovative method of learning in a lecture.

Case based Scenario makes them more confident; motivate them for self reading and learning. Better understanding on clinical aspect of the topic, increases interest and promotes problem solving.

According to the students think pair and share broadens their thinking and there is better peer learning.

Table 1: Response of Students on Design and Utility of interactive sessions

No.	Item	Response 1n (%)	Response 2n (%)	Response 3n (%)	Response 4n (%)	Response 5n (%)
1	Created a fun learning environment and enjoyed them	103 (75.2)	16 (11.7)	14 (10.2)	4 (2.9)	0 (0)
2	Increased understanding of the topic	92 (67.2)	27 (19.7)	3 (2.2)	11 (8)	4 (2.9)
3	Gained more knowledge and stimulated thinking	98 (71.5)	9 (6.5)	19 (13.9)	5 (3.3)	6 (4.8)
4	Sessions different but not sure; helped me to learn more	7 (5.1)	14 (10.2)	23 (16.8)	47 (34.3)	46 (33.6)
5	Enthusiastic and motivated to participate	74 (54)	41 (30)	12 (8.8)	7 (5.1)	3 (2.2)
6	Felt encouraged to Discuss	68 (49.6)	24 (17.5)	20 (14.6)	17 (12.4)	8 (5.9)
7	Had enough time to discuss	65 (47.4)	32 (23.3)	24 (17.5)	11 (8)	5 (3.6)
8	Useful and clarified my doubts	67 (48.9)	26 (19)	17 (12.4)	19 (13.9)	8 (5.8)
9.	Emphasized and relevant to medical practice	63 (46)	41 (30)	8 (5.8)	15 (10.9)	10 (7.3)

(Response: 1 strongly agree, 2 agree, 3 neutral, 4 disagree, 5 strongly disagree)

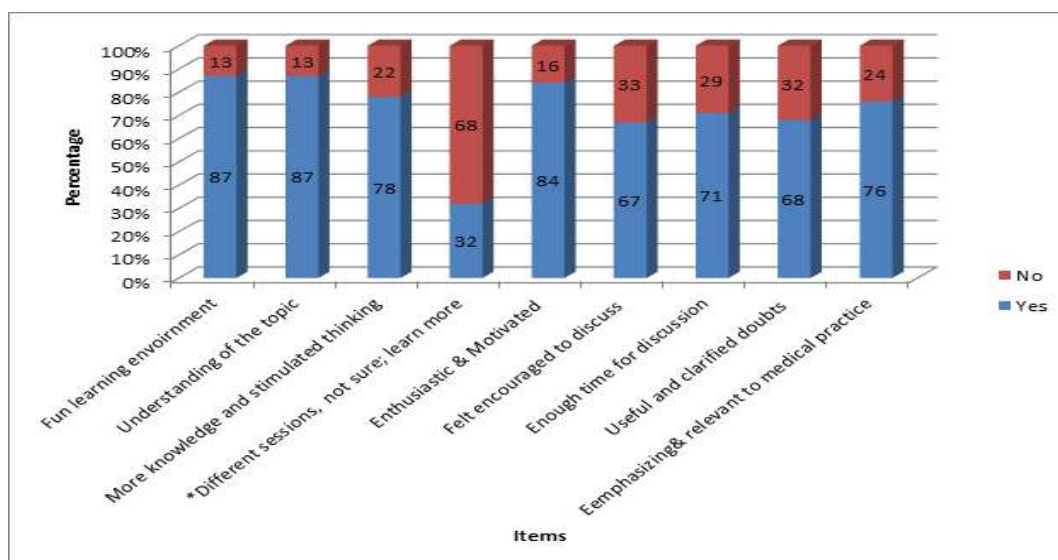


Fig. 1: Positive & Negative (%) Response of Students on Design and Utility of Interactive Sessions
Responses (1 & 2 = Yes, 3, 4 & 5 = No) except *(1, 2 & 3 = Yes, 4 & 5 = No)

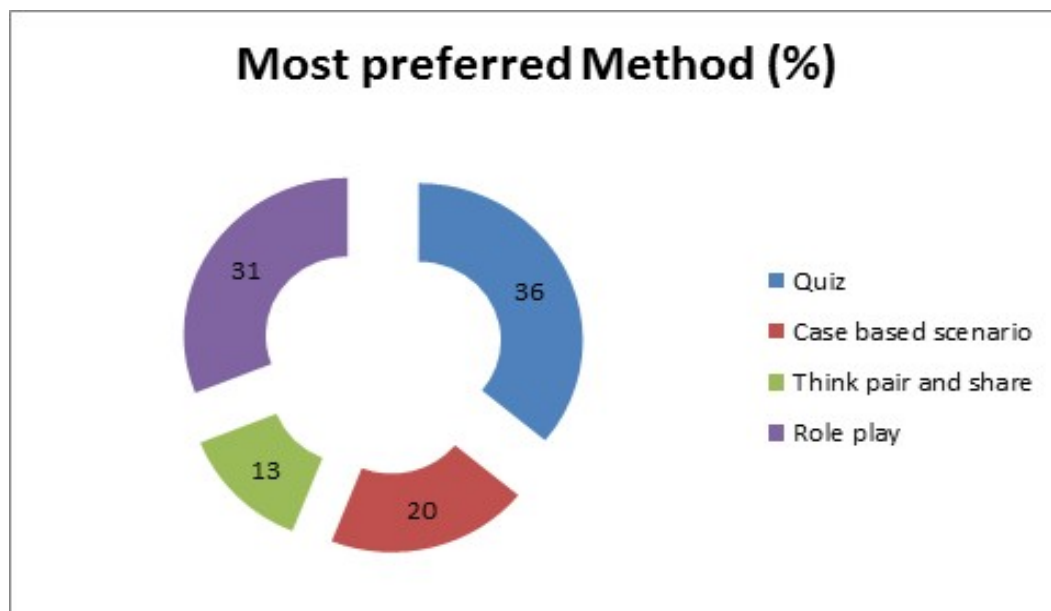


Fig. 2: Percentage of most preferred method of interactive teaching learning

DISCUSSION

It is well documented that student's attention can be captured by engaged teaching, and make them receptive to, and involved with, the concepts.^[9] Active learning promotes better understanding, retention of the topic, clarifies the doubts better, development of communication skills and better reproducibility.^[10]

Studies in education have demonstrated that increased attention and motivation enhance memory.^[11] Interaction helps student engagement in the lecture and motivates them positively to learn. Active participation and involvement is a prerequisite for learning beyond the recall of facts, and improvement in academic performance. Moreover interactive learning through assessment, evaluation, decision making and error correction creates a stronger learning environment than passive instruction.

Feedback is an essential part of learning. Active learning allows teachers to receive feedback on student's needs and perceptions, and on future teaching-learning directions.^[11] Feedback questionnaire with either close, open ended or both items throw a light on the students perception, on the strategies used and also gave an insight to their learning needs.

Collaborative-learning exercises, pause procedure, think-pair-share, minute papers, role playing, models, seminars, mcq's, case based studies are some active-learning strategies that can be used effectively in large classrooms. An advantage of these procedures is that they require little preparation. The students get time to reflect back, discuss in their groups and delve deeper into the material.^[12]

Outcomes: What this study adds

In this study four different methods of interactivity as an adjunct to didactic lecture on the topics of endocrine

pharmacology are used to promote active learning. Quiz at the start of the session stimulates the students to participate actively. Reasonable thinking is promoted and helps to gain and retain deeper knowledge regarding the topic. Similarly think pair and share helps them to think the response, sharing helps to auto correct them if wrong.

Case based scenario in the para clinical theory classes helps them to learn on clinical aspects of certain problems. The knowledge gained helps in diagnosing and providing a treatment protocol in later years.

Role Play is an enjoyable activity for whole class. The students rehearsed their roles provided before hand at homes. It is like a real setting experience on certain issues of explaining a diagnosis, counseling a patient, regarding treatment or breaking a bad news.

Overall, interaction during lectures helps to break the monotony, increases attention span promotes active learning and helps students to retain better.

LIMITATIONS

1. Technical and logistics were a challenge due to change in lecture schedules.
2. Few students did not participate at all despite asking them repeatedly.
3. Time for conducting a formative assessment test was not there due to summer vacations.

My Reflections:

- a. What was good: This is the first time different strategies in the lecture were practiced in a structured manner. The students appreciated it well, enjoyed and participated actively in the class. With the progression of the sessions the involvement of students was tremendous.

- b. What could have been differently: It is realized that educational projects require a lot of time management and support of colleagues. A class test for formative assessment of students could have been conducted well in time.
2. The road ahead: As the students could not be assessed formatively, a test on all the topics covered by interactivity shall be planned. Incorporation of different interactive strategies for large group teaching to all the faculties of the department shall be suggested.
11. Jason H and West berg J. Providing constructive Feedback. (Boulder, CO, ACIS Guidebook for Health Professionals) 1991.
12. Ruhl, Kathy L., Charles A. Hughes, and Patrick J. Schloss Winter "Using the Pause Procedure to Enhance Lecture Recall." Teacher Education and Special Education 1987;10:14-8.

CONCLUSIONS

The results of the project clears that the students prefer interactivity in addition to the didactic lecture in their 2nd professional MBBS Lectures of Pharmacology. It helps to create a vibrant atmosphere and an enjoyable learning experience in the class. It motivates them to participate in the class and helps to retain better for exams. We should plan different methods of interactivity before hand to be used in a large group to break the monotony of conventional lecture practices.

IMPLICATIONS

It is recommended to implement different strategies of interactivity to be used in large group teaching so as to promote better learning among students. Interaction activities are a motivational tool for improving teaching-learning practices.

REFERENCES

1. Thaman RG, Dhillon SK, Saggar S, Gupta MP, Kaur H. Promoting active learning in Respiratory Physiology – positive student perception and improved outcomes. Natl J Physiol Pharm Pharmacol 2013;3:27-34.
2. Kaur D, Singh J, S, Mahajan A, Kaur G. Role of interactive teaching in medical education. Inter J of Basic and Applied Med Sci 2011;1:54-60.
3. Chilwant K.S. Comparison of two teaching methods, structured interactive lectures and conventional lectures. Biomedical Research 2012;23(3):363-6.
4. Maloney M, Lally B. The relationship between attendance at university lectures and examination performance. Irish J Educ 1998 29:52-62.
5. Gulpinar, M. A., and Yegen, B.C. Interactive lecturing for meaningful learning in large groups. Medical Teacher 2005;27:590-4.
6. Rao SP, DiCarlo SE. Peer instruction improves performance on quizzes. Adv Physiol Educ 2000;24:51-5.
7. Gelula MH. Effective lecture presentation skills. Surg Neurol 1997;47:201-4.
8. Saroyan A, Snell L. Variations in lecturing styles. Higher Educ 1997;33:85-104.
9. Pettit RK, McCoy L, Kinney M, Schwartz FN. Student perceptions of gamified audience response system interactions in large group lectures and via lecture capture technology. BMC Medical Education 2015;15-92.
10. Buch AC, Chandanwale SS, Bamnikar SA. Interactive teaching: Understanding perspectives of II MBBS students in Pathology. [Downloaded free from <http://www.mjdrdypu.org> on Saturday, August 15, 2015, IP:1.187.244.137].