



Effective reaction of the medical students on introduction of interactive teaching methods

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Abstract

Trends in education are shifting from passive to active learning, replacing the old metaphor of "transmission of knowledge" with a new metaphor of "dialogue". Active learning encompasses various methodologies, with each serving the purpose of fostering an active classroom. One method is interactive lectures. It involves an increased interchange between teachers and students about the lecture content. Response to it needs to be elicited. In this study, Microbiology Undergraduate students were exposed to both interactive lectures and regular lectures for a period of three months. Various techniques used for making the lectures interactive were Quiz, puzzles etc., Students feedback was obtained by using a structured five point Likert scale questionnaire to elicit the perception and preferences towards the interactive teaching methods with open ended questions seeking their suggestions. Almost 96-98% of students agreed or strongly agreed that interactive teaching created interest and made class interesting and attentive. 90% of the students wanted to attend more other interactive methods along with the continuation of the same in all their classes. So, Interactive teaching methods has been evaluated more positively by the students than didactic lectures as shown by parameters tested like keeping them attentive, creating interest, making them active, increasing their participation in class, providing concepts clear and easy, understand the subject better, helpful in clinical application, concentrate more etc. Introduction of interactive teaching methods showed an effective response from students.

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Introduction

Undergraduate medical education, as with any other education programs needs ongoing improvement to meet changing demands of the health of the population. (Chandrachood B, 2015) The training of highly specialists must meet strict requirements: a high level of professional competence, developed communication skills, the ability to predict the results of one's own activity. To meet this task, higher educational institutions are aiming at ensuring high quality education which a graduate would be able to quickly adapt to production process of the occupation selected. In the present system, classroom studies based on passive teaching methods prevail. Performance by the medical students has been deteriorating in past few years. So reviewing and modification of teaching methodology is necessary. Trends in education are shifting from passive to active learning, replacing the old metaphor of "transmission of knowledge" with a new metaphor of "dialogue". (Mayer and Jones, 1993) Active learning encompasses various methodologies, with each serving the purpose of fostering an active classroom. One method is interactive lectures.

In modern pedagogical science, the concept of interactive teaching is being formed and its principles are being developed more precisely and in detail. (Ladousse, 1993; Nunan D, 1991; Richards, 1992; Stupinina S.B) Introduction of these methods of teaching is directed at the formation of active personal position and improving skills of mutual cognitive activity. The problem of development of the students' activity and their needs in self-education can be successfully solved within the framework of interactive learning. (Emelyanov, Yu.N., 1985) Interactive lecturing involves an increased interchange between teachers and students about the lecture content. This is suggested as a means of overcoming the disadvantages of regular lectures. Didactic lectures are generally of one hour duration and studies have shown that

attention wanes quickly after twenty minutes of attending lectures. (psychology wiki) Engagement triggers are incorporated in interactive lectures to break the monotony, thereby maintaining student attention. (serc.carleton.edu) There is a lot of active involvement and motivation among the participants leading on to more effective learning. Increased arousal and motivation are essential ingredients for learning. (Kaur D *et al.*, 2011) For teachers, it offers an opportunity to learn more and to use their skills to listen carefully, get feedback and challenge misconceptions where possible.

For students, it facilitates problem- solving and decision making, as well as communication skills. This is particularly important in medical education where the application and use of information is as important as retention and recall of facts. (Steinert Y and Snell LS, 1999) It is well known that interactive mode of learning is always preferred but interactive teaching is not very common in South Asia. This is because of the reasons like lack of methodical literature, lack of practical working outs and curricula, fear of a teacher in losing control and the fear of not covering all the material along with the time constraint. (Steinert Y and Snell LS, 1999) Formation of the student's academic process so as to enable them to get both high quality knowledge and practical skills is vital for higher educational institutions. Interactive teaching promotes higher level of thinking like analysis, synthesis of material and application to other situations and evaluation of the material presented.

Aim of the study

To find out the effect of interactive teaching among medical students.

Material and methods

This study was conducted on second year Microbiology undergraduate students (n=94)

Study design

A Qualitative educational interventional study

Sample method

Convenient sampling

Study tools

Pre-designed and Pre-validated structured feedback questionnaire

Planning

After obtaining valuable feedback from the faculty involved in medical education unit of our institute, the planning of the interactive teaching methods in the regular class at regular intervals and questionnaire of the feedback form was designed.

Methods

The entire batch were exposed to both interactive lectures and regular lectures for a period of three months. After sensitization of the faculty to the concepts of interactive teaching, introduction of interactive teaching methods was introduced to the students.

The various techniques that were used for making the lectures interactive are:

- a. Quiz
- b. Word puzzles to identify the keywords in the lectures
- c. Listing the key words
- d. Posing question by the student about the lecture
- e. Questions by the teacher during the class in the form of one word answers, multiple choice questions, match the following, cross word puzzle etc
- f. Posing relevant case vignettes during the class and discussion of them after the topic
- g. Debate sessions-pro/con
- h. Role playing: Students participating as different characters and explaining the content as a play
- i. Brain storming puzzles in between the topics in the lecture

The students were informed about the interactive methods used before initiating the class. Oral consent was taken from all the participants.

Student's feedback was obtained by using a structured five point Likert scale questionnaire to elicit the perception and preferences towards the interactive teaching methods with open ended questions seeking their suggestions. Questions were posed to elicit whether the interactive teaching methods which were introduced kept them attentive, created interest, made them active in the class, increased participation, provided concepts clear and easy, were able to understand the subject better, made learning better, were helpful in clinical application, could find areas to concentrate in the topic, had opportunity to interact with the teacher. A total of 10 items one of which was planned as a negative question to know the appropriateness of answering. The questionnaire was validated and tested for reliability. The students were also posed the question regarding the preferred technique among the different interactive techniques which were used in these three months. Faculty were also questioned for their response to interactive teaching method which was followed.

Data analysis

The data collected is analyzed for descriptive statistical analysis by using Likert scale and the results are expressed as percentages. The data is represented in the form of tables and charts.

Results

Among the total number of 94 students, feedback was received from 93 students regarding the interactive teaching sessions conducted for the duration of 3 months.

Opinion of the students on introduction of interactive teaching methods is summarized in Table 1.

Almost 98% of students agreed or strongly agreed that interactive teaching created interest and made class interesting. Almost 96% students accepted that interactive teaching kept them

attentive. Likewise, significantly more number of students agreed or strongly agreed that interactive teaching methods introduced in the classes made them active in the class, increased their participation, could concentrate more in these classes. This type of teaching made significant number of students understand the subject better with clear concepts and made their

learning easier and also could make clinical application. There had been noted response for the increased interaction with teacher also.

Among the different techniques used to make lectures interactive, the students preferred/liked quiz, followed by puzzles, MCQs/one word answers and case discussions. (Table 2)

Table 1. Student's response to different interactive teaching methods used in classes.

Variables	Strongly Agree %	Agree %	Neutral %	Disagree %	Strongly Disagree %
1. Made class interesting	57.6	40.7	1.7	0	0
2. Kept attentive	28.8	67.8	1.7	1.7	0
3. Made students active in class	28.8	62.7	8.5	0	0
4. Increased participation	13.6	45.8	33.9	1.6	5.1
5. Provided concepts clear and easy	20.3	61	16.9	0	1.8
6. Understand subject better	20.3	62.7	10.2	1.7	5.1
7. Learning made better	16.9	61	16.9	5.1	0
8. Helpful in clinical application	20.3	55.9	16.9	1.8	5.1
9. Could concentrate more in class	45.8	39	13.6	1.6	0
10. Provided opportunity to interact with teacher	18.6	47.5	32.2	0	1.7

Table 2. Interactive teaching techniques liked by students.

Interactive teaching methods	Students who liked these methods	
	Number	Percentage
Quiz	81	87.1%
Puzzles	56	60.2%
MCQ/one word answers	21	22.6%
Case discussions	21	22.6%

interaction during lectures help to break the monotony, increased attention span promote active learning and helps students to retain better. Active learning allows teachers to receive feedback on student's needs and perceptions, and future learning directions. (Jason H and West berg J, 1991).

It was observed that overall attendance in the class increased from 60 to 88%. 90% of the students wanted to attend more other interactive methods along with the continuation of the same in all the regular classes.

We have employed a few of the interactive techniques during the lectures in some classes along with regular didactic lectures in other classes as has been shown in the methodology. The results of the present study showed effective reaction of the students on introduction of interactive teaching methods in lectures. The response to interactive teaching is visualized to all the parameters like keeping them attentive, creating interest, making them active, increasing their participation in class, providing concepts clear and easy, enabling them to understand the subject better, helpful in clinical application, concentrate more and given opportunity to interact with the teacher.

Faculty response on questioning was that there was increased teacher student interaction, student discussion, communication and positive attitude towards teaching. However, limited time, lot of planning were the big concerns raised by faculties.

Discussion

Interactive teaching involves an increased interchange between teachers and students about the lecture content. Interaction activities are a motivational tool for improving teaching learning practices. (Steinert Y and Snell LS, 1999) Overall,

Findings of the study are in concordance with other studies on interactive teaching like Jennifer

K Knight and William B Wood. In their study, they have shown that interactive teaching resulted in significantly better understanding of the concepts. (Jennifer K Knight, William B Wood, 2005) Gulpinar and Yegen have shown that interactive lectures increased the problem solving skills of students. (Gulpinar and Yegen, 2005) Srinivasan Roopa and Bagavad Geeta M *et al.*, have shown that interactive lectures are more better than regular lectures in the five parameters were tested i.e., usefulness, overcoming monotony, keeping students attentive and interested and providing motivation for self-learning. (Srinivasan Roopa and Bagavad Geeta M *et al.*, 2013) In the study by Gino Abraham Geethadevi Madhavikutty, there was statistically significant gain in knowledge by both methodologies, but knowledge gained by interactive lectures was significantly higher than that gained by tutorials. (Gino Abraham and Geethadevi Madhavikutty, 2016) Interactive teaching will further enhance learning and knowledge retention among students. (Ibrahim M, Al-Shara O, 2007)

S.V. Bogdanova and V.S. Bratchikova pointed out in their article, "the traditional and innovative teaching methods should be applied in a variety of combinations, but the correct determination of these combinations in each concrete case is always essential. (Bogdanova, S.V. and V.S. Bratchikova, 2011) Various techniques can be developed by various teachers, which suit the requirements and facilities which are available. Interactive lectures are a pleasant way of increasing the students' attention.

Among the various methods used in the interactive lectures, Quiz was liked very much by the students followed by cross word puzzles and case scenarios. In a similar study by Anshu Gupta, Karun Bhatti *et al.*, Quiz was the most preferred method which stimulated the students to participate actively. Reasonable thinking is promoted and helps to gain and retain deeper

knowledge on the topic. (Anshu Gupta *et al.*, 2015) They have also stated that case based scenarios in the para clinical theory classes helps students to learn on clinical aspects of certain problems. The knowledge gained helps in diagnosing and providing a treatment protocol in later years. In the study by Srinivasan Roopa and Bagavad Geeta M *et al.*, they reported that case vignettes discussion is one of the highly appreciated interactive teaching method.

Interactive teaching methods has been evaluated more positively by the students than didactic lectures as shown by their increase in attendance for the interactive classes. Students are interested to have more of these type of teaching methods by all the faculty for all the lectures of the department.

Faculty/teacher reaction to introduction of interactive teaching methods was also positive apart from some issues like limited time, lot of planning required for the class. These obstacles could have been overcome by a way of structured time table without the need of extra hours. Conducting workshops for the faculty to demonstrate good interpersonal behavior, effective communication skills and using techniques which foster collaboration is suggested. (Meyers SA, 2003) In a study by Jarina Begum, Syed Irfan Ali *et al.*, on conducting an in-depth interview with the faculties showed a positive response toward ITL although time, resources, lot of planning, fear of losing control, and not finishing the content in time were the big concerns for all. (Jarina Begum, Syed Irfan Ali *et al.*, 2020)

Thus, Lectures cannot and should not be done away with; instead, they should be made more interesting. Thus, better approach would be incorporation of interactivity into regular didactic lectures, thus optimizing the outcomes. By using interactive teaching techniques and strategies, students will become more involved in the learning process, retain more information and be more satisfied. So will be the teacher.

To conclude, introduction of interactive teaching methods showed an effective response from students ensuring increased attention, interest and concentration during lectures. However further work is needed to develop techniques for active learning process. Implementation of interactive teaching methods in regular lectures by all the faculties of different departments is well required.

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