

Original article:

Evaluation of different teaching methods used in physiology lectures

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Abstract

Background: A teaching method comprises the principles and methods used for instruction. The methodology of teaching a topic will influence the students in the comprehension of the subject and in the management of clinical conditions. The best way to assess and improve the teaching methodology is through the students' feedback. The most expert teachers emerge from years of experience with a variety of teaching methods. 1,3 Even learning The choice of teaching method or methods to be used depends largely on the information or skill that is being taught, and it may also be influenced by the aptitude and enthusiasm of the students.

Objectives: This study was conducted to find out which method of teaching presentation, Overhead projector or simple chalk and board was best preferred by students.

Methods: One hundred medical students of first M.B.B.S. voluntarily participated in the study. A prevalidated questionnaire was used to find out the opinions of the students. They were supposed to fill the questionnaire and evaluate different teaching methods in the lecture classes.

Results: Most of the students preferred powerpoint presentation better than the overhead projector and chalk and board.

Conclusion: Students preferred power point over blackboard and overhead projector among the three methods used for teaching. But they preferred a combination of teaching aids when required.

Keywords: Teaching Method, Powerpoint, Overhead projector

Introduction:

The primary goal of medical education technology is to enhance learning and teaching by integrating various effective teaching methods into the medical curriculum. To take care of the huge Indian population needs quality doctors and not just quantity. Heightened focus on the quality of teaching in medical college has led to increased use of student surveys as a means of evaluating teaching¹. Undergraduate teaching in Physiology has been developing with the use of new methods of teaching including use of AV aids, small group teaching seminars etc. To make the lectures of

Physiology more interesting and understanding one has to review the teaching programme at regular intervals. The best way to assess and improve the teaching methodology is through the students feedback. The most expert teachers emerge from years of experience with a variety of teaching methods². Large scale efforts are required with the continuous interventional feedback studies in the highly revolutionizing field of medical teaching and learning. Rashmi et al³

Till date the most common methods used for teaching Physiology in the lecture classes include overhead projector (OHP) and transparencies,

Powerpoint presentations and traditional chalk and board method. Various studies have been conducted earlier and some of these studies ended inconclusively. Garg et⁴ al have observed audiovisual aids should be included along with discussions. Seth et al⁵ have conclude the traditional chalk and board and powerpoint better than OHP for better performance. So , to improve and modify our teaching methodology we planned to conduct this study to evaluate the presently used teaching methods in Physiology.

Aims and objectives of the study

1. To evaluate different teaching methods used in Physiology lecture classes.
2. To find out the best method for understanding and retaining the topic.

Materials and methods:

A questionnaire was designed and prevalidated and was provided to the first year medical students (table 1) .The objectives were explained to them

and the questionnaire was distributed . One hundred students participated in the study .They were supposed to fill the questionnaire and evaluate different teaching methods in the Physiology lecture classes. Three classes on different physiology topics were conducted using blackboard , over head projector (OHP), powerpoint presentations. The three topics were taken by the same teacher so there was no teacher bias. Students were then asked to evaluate each of the following parameters out of maximum marks of five.

The assessment was done by totalling the above 8 items out of a maximum of 40. The average marks in each of the 3 lectures delivered was taken to find the final assessment score. Also students were allowed to give their own suggesstions. The results were compared to find out the best method for understanding and retaining the subject according to the students opinion.

Table 1: Questionnaire for Evaluation of teaching methods used for lecture classes

S.NO	PARAMETER	MARKS				
		1	2	3	4	5
1	THE LECTURE WAS WELL ORGANISED					
2	THE LECTURE WAS CLEARLY AUDIBLE					
3	THE BOARD WORK, VISUAL AIDS WERE USED APPROPRIATELY					
4	THE BOARD WORK, VISUAL AIDS WERE CLEAR					
5	THE LECTURE WAS TAKEN PROPERLY					

6	THE LECTURE AROUSED INTEREST IN THE STUDENTS					
7	THE LECTURE IMPROVED THE UNDERSTANDING OF THE TOPIC					
8	THE SUMMATION AT THE END OF THE LECTURE HELPED IN RETAINING AND RECOLLECTING THE TOPIC					

Statistical analysis

The data was analyzed by using one way ANOVA & post ANOVA pair-wise comparison was done by applying Tukey HSD test.

Results

One hundred students participated in the study. The assessment of marks was done according to questionnaire filled by students (Table 1) and(Figure 1).

The average scores given by the students to lectures using OHP were 30.81 using blackboard were 31.58 and using PowerPoint were 32.03 out of maximum score of 40 (Figure 2). There was no statistically significant difference between average scores of all the three teaching methods according to one way ANOVA test. Tukey HSD test for group wise comparison stated that there was statistically significant difference between OHP compared to PowerPoint (P < 0.01) and chalk & talk compared to PowerPoint (P < 0.01).

Whereas, there was no statistical significant difference between OHP compared to chalk & board. Therefore, it can be said that students preferred lectures utilizing PowerPoint presentations as it was rated with the highest average score.

Most of the students commented (in comments & suggestions) that the effectiveness of any lecture depends upon the teacher, whatever may be the method used. According to 90% students' most

effective method was combination of traditional 'chalk and talk' and PowerPoint presentations whenever necessary e.g. for explaining diagrams, animations, charts and classifications. Majority of students suggested incorporation of more interactive sessions, case study, small group discussions in regular teaching.

Discussion

The present study was undertaken to evaluate different existing teaching Methods in Physiology including overhead projector, PowerPoint presentations and traditional blackboard method and to find out the best method amongst them. As far as superiority of particular method is concerned, students preferred PowerPoint than blackboard and blackboard than OHP. This finding is in accordance with previous study conducted by Vikas Seth et al where majority of students preferred PowerPoint presentations. Amaneet al⁶ also had the same finding as the present study. Although earlier studies have inferred that traditional chalk and talk method is superior method than other two methods, a study has pointed out that in PowerPoint presentations the ability to integrate the text and the pictures and images is a great advantage and improves the educative value of the subject. It is also suggested that although PowerPoint has some advantages, it reduces the interactive discussion

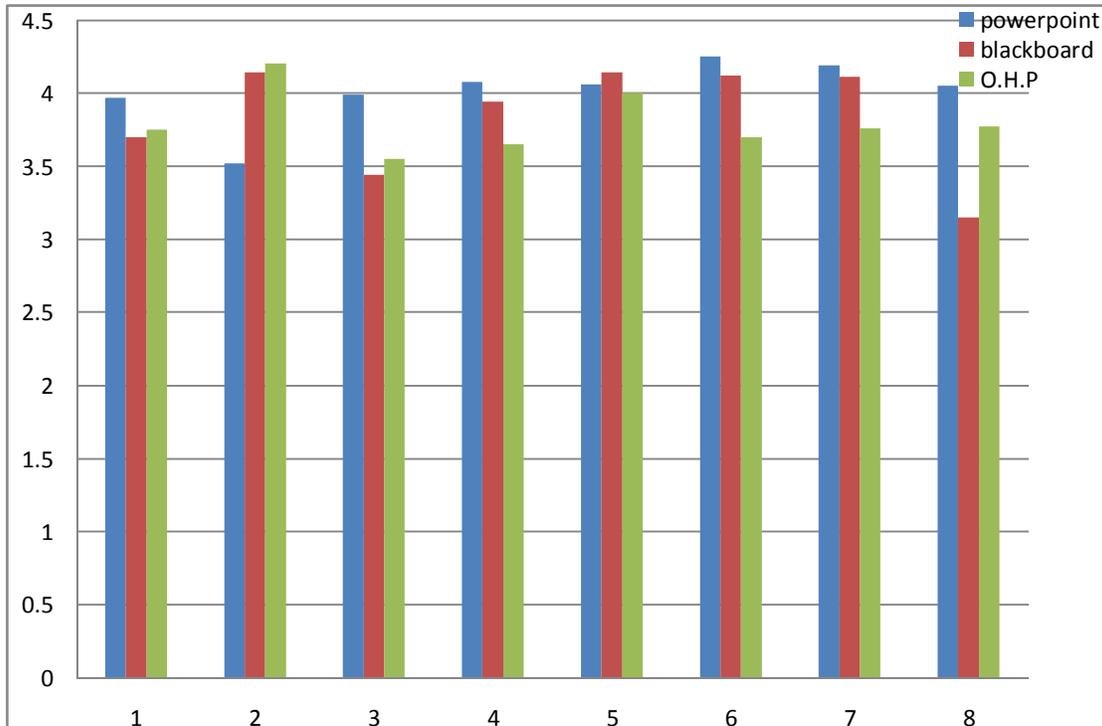


Figure 1: Response of participants (marks awarded) to different teaching methods for 8 parameters listed

between teacher and students. However, this method avoided the issue of poor handwriting and dirty blackboard While Dudley et al⁷ stated that the teaching method of lecture delivery has no significant impact on learning outcomes.

Muneshwar et al⁸ found out that there needs to be a decrease in the generation gap between the students and teachers by imparting group activities in the form of seminars and symposiums.

According to J. Thirunavukkarasu et al¹⁰, interactive lecture classes have more role in gaining

knowledge than tutorials and small group discussions .

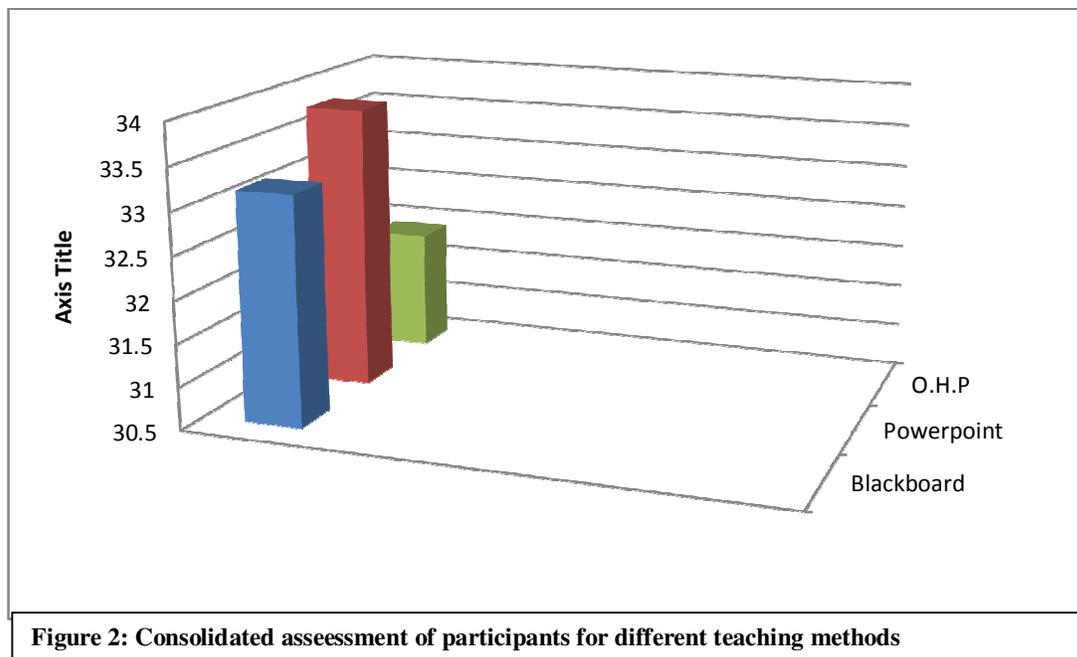
Conclusion

Depending on the topic to be covered the teaching methods should be used appropriately, for example for flow charts and classification OHP is ideal method, for showing any physiological process use of power point with animation is most preferred. And the time tested blackboard, talk and chalk method remains the best method for teaching basic topics in Physiology.

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