

Comparative study of chalkboard teaching over PowerPoint teaching as a teaching tool in undergraduate medical teaching

Shrikrishna Nagorao Bamne¹, Avantika Shrikrishna Bamne²

¹Department of Physiology, Index Medical College Hospital & Research Centre, Indore, Madhya Pradesh, India.

²Department of Anatomy, Index Medical College Hospital & Research Centre, Indore, Madhya Pradesh, India.

Correspondence to: Shrikrishna Nagorao Bamne, E-mail: shrikrishna_bamne@rediffmail.com

Received July 1, 2016. Accepted July 14, 2016.

Abstract

Background: Teaching aids like chalkboard, PowerPoint (PPT), etc. have been used in undergraduate medical teaching but the superiority of these aids over one another has not been proven.

Objective: The present study was conducted to evaluate the impact of the chalkboard and PPT based lectures in undergraduate medical teaching on medical students.

Material and Methods: This study was conducted in Department of Physiology, Index Medical College Hospital & research centre, Indore, India. Hundred medical students were randomly divided into two groups and two lectures were delivered on two different topics. For one topic, for one group lecture was delivered using chalkboard, for second group, same topic was delivered using PPT presentation. And for second topic, for first group lecture was delivered using PPT and for second group using chalkboard. Single-best Multiple Choice Questions [MCQs] paper was used for assessing the knowledge gained on the next day. One direct question to note student preferences for these aids was included. The differences in the marks obtained in the two groups were analyzed by independent student's "t"-test.

Results: Students who attended the class using chalkboard obtained significantly higher score in MCQ test compared to those who attended the same content based lecture using PowerPoint ($p < 0.05$). The chalkboard lectures were preferred by 87% of the students.

Conclusion: The results of the present study suggest that chalkboard teaching has the advantage of a better recall besides being the most preferred aid among first year medical students.

KEY WORDS: Chalkboard, lectures, PowerPoint, teaching aids

Introduction

Lectures have been the most common form of teaching and learning since ancient times (Brown and Atkins, 1988). A lecture has its own merits; otherwise this form of teaching would have ceased.^[1]

During lecture, both the visual and auditory senses are available to absorb information and assistance in the form of a visual aid is useful (Sahu and Supe, 2000).^[1] A chalkboard is uniquely effective as a medium of class-room instruction and has been used commonly in the lectures. Recently, the use of electronic presentations is now common in medical colleges, as in other colleges and universities. Microsoft PowerPoint (PPT) is the most popular package used out of all electronic presentations.

Educationists are divided on the superiority of chalkboard teaching or PPT or OHP use for teaching. According to Novelli and Fernandes (2007), traditional classes with blackboard presentation were the most favored by students in biomedicine and medicine courses, while Rocklin (1998) suggests that the use of PowerPoint is a driving force for teachers to "help their students to learn".^[1]

Considering the diverse views about the teaching methodologies, in the present study, we assess the students'

Access this article online	
Website: http://www.ijmsph.com	Quick Response Code:
DOI: 10.5455/ijmsph.2016.01072016532	

International Journal of Medical Science and Public Health Online 2016. ©2016 Shrikrishna Nagorao Bamne. This is an Open Access article distributed under the terms of the Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0/>), allowing third parties to copy and redistribute the material in any medium or format and to remix, transform, and build upon the material for any purpose, even commercially, provided the original work is properly cited and states its license.

preferences for various lecture delivery methods, using chalkboard, using PowerPoint presentations.

Chalkboard aid is inexpensive; easy to clean and reuse, allows students to keep pace with the teacher and is not dependent on electricity.^[2]

PPT has the advantage of using colors, fonts, diagrams, and animation. Its disadvantage is that dim light causes loss of eye contact; note taking is difficult, has tendency to overload information and needs electricity.^[2]

There is a need to evaluate the impact of this change on the knowledge gained by students.

Therefore, the present study was planned in Index Medical College, Indore to compare the impact of the PPT and chalkboard in undergraduate medical teaching by assessing the knowledge based on the marks obtained and studying student preferences for these aids.

Objectives:

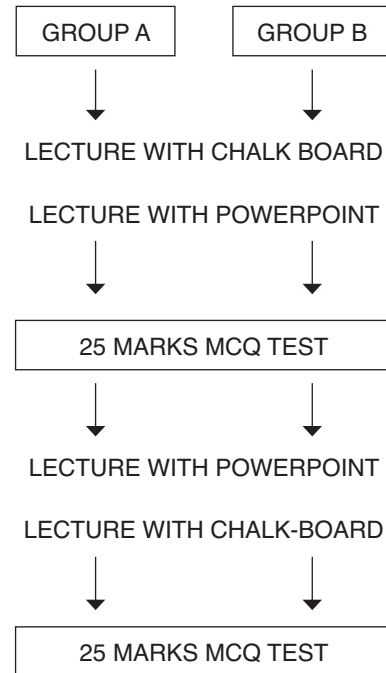
1. To evaluate the impact of the chalkboard and PPT-based lectures in undergraduate medical teaching on medical students.
2. To get structured feedback from students about this form of teaching-learning media.

Material and Methods

This study was conducted in the Department of Physiology, Index Medical College, Indore. The study was approved by the Institutional Ethics Committee. A total of 100 medical students who were from first year MBBS were included in this study. The students were randomly divided into two groups.

- I. TOPIC I: GROUP A: Teaching done with chalk and board
GROUP B: Teaching done with PowerPoint presentations
- II. TOPIC II: GROUP A: Teaching done with PowerPoint presentations
GROUP B: Teaching done with chalk and board

Comparison of means of marks across groups was performed by 't'-test. The students were asked to fill the structured questionnaire about their views and perception of two methods of lecture delivery e.g. chalkboard and PowerPoint presentation. Feedback given by students were evaluated on a three point **Likert scale** (i.e., agree, no opinion, and disagree).



Results

Table 1 shows the comparison of marks obtained by the students using the two teaching aids. Significantly higher marks were obtained by students who were taught using chalkboard compared to those students who were taught using PPT. Briefly, 87% students prefer blackboard teaching over teaching using PPT (Figure 1).

Discussion

This study clearly highlights the point that the preference for the method of lecture delivery in order of priority of teaching aids was chalkboard > PowerPoint (PPT). Also more number of students preferred chalkboard (87%) over PPT (13%). The medical students significantly preferred the use of chalkboard. Hence, the most probable reason for the noted difference of opinion might be as below:

1. There is no doubt that learning is better when the learner is active rather than passive.

Table 1: Comparison of marks obtained by the students in the two groups

Parameter	Chalkboard (Mean ± SD) (n = 50)	PPT (Mean ± SD) (n = 50)	Significance level
Marks obtained (Topic 1)	19.92 ± 3.148	16.98 ± 2.084	0.000
Marks obtained (Topic 2)	19.86 ± 2.821	17.66 ± 1.985	0.000

SD = standard deviation.

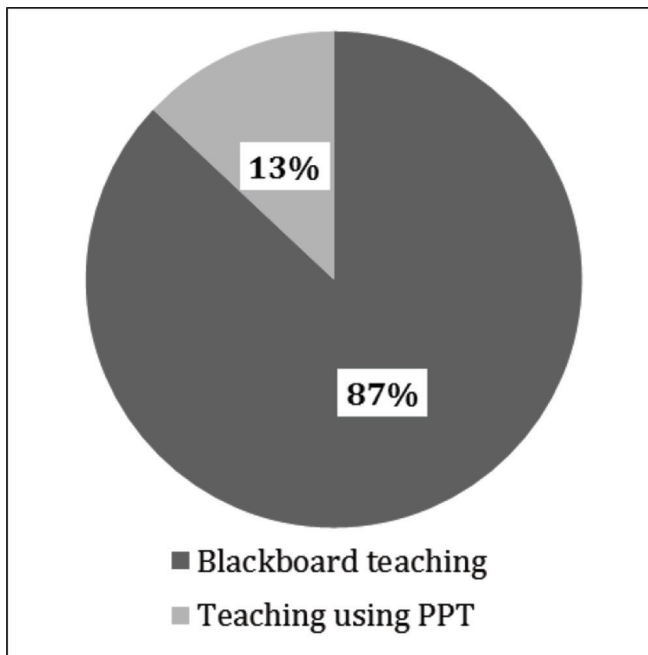


Figure 1: Preference of students for teaching aids.

Teaching with chalkboard engages the learners actively and the learners always become attentive to that what the teacher is writing and providing knowledge on the board. In this traditional method, the teacher can easily engage the learners actively because students think on each written or discussed point on the board.^[3]

2. With the chalkboard method, the lectures are clear and understandable, interesting and interactive; they stimulate their interest and advance their understanding of the subject. Most importantly, the students are able to take down the notes and diagrams. Also teachers find flexibility with chalkboard to amplify a particular point.^[1]
3. The main reasons for liking this technique are that the student-teacher interaction is better, it encourages taking down the notes and diagrams as the students follow the hands of the teacher, and the lecture contains natural pauses and breaks. Power failure could not interrupt the lecture.^[1]
4. The main reason for disliking this technique are that poor handwriting is not legible and sometimes the blackboard is dirty, especially if used several times in the day, and at times the chalk is faulty and it soils the clothes. Also fewer diagrams can be provided and less information can be covered in the lecture.^[1]
5. With PPT, the lectures are well organized. The main reasons for liking this technique are that it provides a better quality of text and diagrams, and it avoids the issue of dirty blackboard and faulty chalks. PPT is more interesting because it can incorporate animations, pictures, graphs, 3D images, sequence of images, and videos.^[1]

6. The main reason for disliking this technique are that it needs the room to be darkened, it takes longer to set up the projection, and any power failure interrupts the lecture. Some teachers go too fast and then students find it difficult to take down the notes and diagrams and students become a passive observer rather than an active participant.^[1]
7. Judicious use of animations makes PPT more interesting and has a lasting impact. It is ideal for fast revision and quick overview of the subject and for seminars.^[1]
8. PPT presentations should contain more diagrams and flow charts and less text. Points should appear line by line and each point should also be explained and not just skipped over.

Implications:

Results of this study will definitely motivate faculties of the institute to increasing use of chalkboard as a teaching tool in undergraduate teaching. And judicious use of audiovisual aids while taking lectures.

Conclusion

In the present study, blackboard teaching is found to be effective teaching tool as compared to PowerPoint teaching. The medical students in our feedback preferred the use of blackboard teaching significantly over the PowerPoint teaching.

Acknowledgment

The author (SNB) would like to thank our medical education unit and our vice dean for his continuous support and encouragement for this project.

References

1. Seth Vikas, Upadhyaya Prerna, Ahmad Mushtaq, Kumar Virendra. An assessment of teachers' preference for lecture delivery methods in medical education. *Educ Res Rev* 2010;5(9):533-7.
2. de Sa SB, Keny MS. PowerPoint versus chalkboard based lectures in pharmacology: Evaluation of their impact on medical student's knowledge and their preferences. *Int J Adv Health Sci* 2014;1(5):10-4.
3. Meo SA, Shahabuddin S, Masri AA, Ahmed SM, Aqil M, Anwer MA, et al. Comparison of the impact of PowerPoint & chalkboard in undergraduate medical teaching: An evidence based study. *J Coll Physicians Surg Pakistan* 2013;23(1):47-50.

How to cite this article: Bamne SN, Bamne AS. Comparative study of chalkboard teaching over PowerPoint teaching as a teaching tool in undergraduate medical teaching. *Int J Med Sci Public Health* 2016;5:2585-2587

Source of Support: Nil, **Conflict of Interest:** None declared.