

Effective physiology teaching methods: from the perspective of first year MBBS students

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Abstract

Background: Students who took admission in first year MBBS course used to study physiology, anatomy and biochemistry for one and half years. Since a decade the first year course duration was reduced to one year unaltering the syllabus in the three basic subjects. So students are focusing on the easy ways to clear the university exams by accepting the concise books, which is dampening the real quality of the subject knowledge. This study is aimed at understanding the best methods of physiology teaching in the lecture gallery, from the student's perspective.

Materials and methods: The present study was undertaken at a private medical college in southern part of India in Telangana state, on 100 students who took admission in first year MBBS course, in the academic year 2015-2016. Out of 100, 36 are boys and 64 are girl students. Distributed a question paper which is having 2 sets of questions. First question is having three statements regarding the teaching methods namely; chalk and blackboard teaching, over head projection teaching and power point teaching. Students were asked to choose the best statement which they prefer. Second question is consisting of combination of teaching methods and they are; chalk and blackboard with over head projection teaching method, chalk and blackboard with power point presentation. Again the students were asked to choose one of the 2 statements in 2nd question.

Results: Students preference of teaching methods for understanding of physiology in percentage; chalk and blackboard-54, over head projection teaching-4, power point presentation-32, chalk and blackboard with over head projection-26, chalk and blackboard with power point presentation-64.

Conclusion: Majority of the students are in favor of a combination of chalk and blackboard with power point presentation for better understanding of physiology, next is chalk and blackboard teaching alone.

Keywords: Chalk and blackboard, Overhead projection, Power point presentation

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Introduction

Students who took admission in first year MBBS course used to study physiology, anatomy and biochemistry for one and half years. Since a decade the first year course duration was reduced to one year unaltering the syllabus in the three basic subjects. So students are focusing on the easy ways to clear the university exams by accepting the concise books, which is dampening the real quality of the subject knowledge. Teaching is an inbuilt art that can be refined by undergoing medical education training, for a medical professional who is working in a medical college. The primary objective of the medical education should be a holistic approach which enhances the problem solving skills with the critical thinking¹. If we know the learning styles of the students, we can adopt new methods of

teaching accordingly^{2,3,4}. Assessment in the classroom must be on amount of learning but not on the teaching style or method⁵. Painfully sitting through long, boring and monotonous lecture is known as lecturalgia^{6,7}. The effectiveness of a lecture will depend on the skill of the lecturer⁸. The visual, auditory, read/write and kinaesthetic (VARK) learners process the information best if they can see, hear, written words and experience or practice the information respectively⁹. This study is aimed at understanding the best methods of physiology teaching in the lecture gallery, from the student's perspective. One should keep in mind that teaching is different when it is in small group discussion with that of class room teaching, in the present study the authors focused on the better methods of class room teaching for making the students to understand the physiology better.

Materials

The present study was undertaken at a private medical college in southern part of India in Telangana state. 100 students who took admission in first year MBBS course, in the academic year 2015-2016 were voluntarily participated in the study. Out of 100, 36 are boys and 64 are girl students. Inclusion criteria: 100 first year MBBS students of both the sex.

Exclusion criteria: students who were absent on the particular day, students who did not respond to any question.

Methods

The study was conducted in physiology lecture gallery, in the department of Physiology before commencing a theory class. Distributed a paper which is having 2 sets of questions. First question is having three statements regarding the teaching methods namely; chalk and blackboard teaching, over head projection teaching and power point teaching. Students were asked to choose the best one which they prefer. Second question is consisting of combination of teaching methods and they are; chalk and blackboard with over head projection teaching method, chalk and blackboard with power point. Again the students were asked to choose one of the two statements in second question.

Statistical analysis

Data was entered in MS Excel and graphs were plotted.

Results

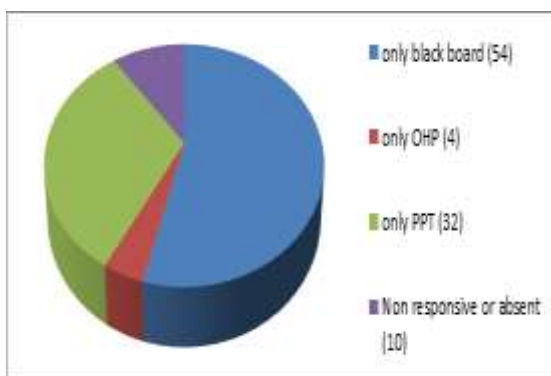


Fig. 1: Pie Diagram Showing the Students Preference of Individual Teaching Methods
Numbers in figures are in percentage

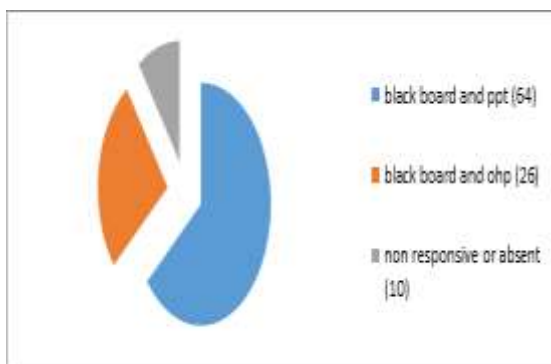


Fig. 2: Pie Diagram Showing the Students Preference of Combination of Teaching Methods
Numbers in figures are in percentage

Discussion

The medical professionals who are working for an academy or in a teaching hospital are not born teachers. To impart good teaching skills, Medical Council of India (MCI) has introduced Medical Education Training (MET) for the medical professionals. When students were asked about individual teaching methods for better understanding of physiology in the lecture gallery, majority of them opted for chalk and blackboard, followed by power point presentation and then over head projection teaching method. Our findings are in line with the earlier research reported¹⁰. Chalk and black board serves as an excellent teaching method for developing, building and understanding the concepts. But the problem with it is, the lecturer loses eye contact with the students and proper use of this method of teaching requires certain writing and drawing skills¹¹. When they were given the option of combination teaching methods, most of the students preferred chalk and blackboard with power point presentation for better understanding of physiology lectures followed by chalk and blackboard with over head projection. Similar observations were reported in the earlier studies^{12,13}. But some studies reported that implementing audiovisual aids in teaching is better than the conventional chalk and blackboard teaching¹⁴⁻¹⁹. The chalk and blackboard, over head projection and power point presentations are best in interaction, providing point wise information and imparting clinical details respectively, though power point presentation was sleep inducing²⁰.

There are some drawbacks reported with the power point presentation like boredom & distraction²¹ and also makes the student as passive observer than an active participant²². It is understandable that some medical professionals are exceptional in making the students to understand the physiology lectures, whatever the teaching methods they opt. They may be in negligible percentage, and rest of them should adapt the teaching methods favoured by the students for making them to understand the physiology in a better way. Students must be attentive to the content of the lecture, organise the information taught in the lecture and finally should rehearse the information again and again. And here the teacher should make the presentation to lead the students to learn more by reinforcing important points and summing up the lecture, most importantly should avoid confounding factors like changing the topics quickly and dealing with the irrelevant information²³. With the power point presentation, the content remains same but the transmitting forms of the lesson to the students differ with the conventional methods²⁴. Majority of the lectures prefer chalk and blackboard teaching, followed by over head projection and finally power point presentation²⁵. With our personal observations from the past one and half decades in the teaching field of physiology, here we would like to make some suggestions to the lecturers. First the lecturer should use a collar mike preferably, to deliver the uniform voice throughout the entire lecture.

Second, using the diagrams, charts, photographs, animations and videos will make the students to understand the physiology better. Third, while preparing over head projection sheet or power point presentation one should write only the points but not the paragraphs. Fourth, use of colour chalks while drawing a diagram and mentioning the objectives at one side of the blackboard also very useful. Fifth, power point presentations may speed up the lecture to such an extent where the students get difficulty in following the lecture. Sixth, lectures will take pauses while using the chalk and blackboard, which allows the students to complete their notes.

Conclusion

The outcome of the present study is chalk and blackboard with power point presentation is the best method for making the students to understand the physiology lectures, followed by chalk and blackboard alone.

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References

1. Flexner A, editor. Medical Education in the United States and Canada: A Report to the Carnegie Foundation for the Advancement of Teaching. Boston: Merrymount Press; 1910.
2. Newble DI, Entwistle NJ. Learning styles and approaches: implications for medical education. *Med Educ*, 1986;20(3):162-75.
3. Lisa Vaughn, Ph.D. and Raymond Baker, M.D. Teaching in the medical setting: balancing teaching styles, learning styles and teaching methods. *Medical Teacher*. 2001;23(6):610-612.
4. Lubawy WC. Evaluating teaching using the best practices model. *Am J Pharm Educ*, 2003;67(3): article 87.
5. Angelo TA, Cross KP. Classroom Assessment Techniques: A Handbook for College Teachers. Second Edition. San Francisco: Jossey- Bass Publishers, 1993:3-4.
6. McLaughlin K, Mandin H. A schematic approach to diagnosing and resolving lecturalgia. *Med Edu*. 2001;35:1135-42.
7. Wilson K, Korn JH. Attention during lectures: beyond ten minutes. *Teach Psychol*. 2007;34(2):85-9.
8. Dent J, editor. Lectures: A practical guide for medical teachers. Philadelphia: Elsevier Churchill Livingstone; 2005.
9. Fleming ND, Mills C. Not another Inventory, Rather a Catalyst for reflection. *To Improve the Academy*, 1992;11:137-55.
10. Novelli E. L. B, Fernandes A. A. H. Students preferred teaching techniques for biochemistry in biomedicine courses. *Biochem Mol Biol Educ*. 2007;35:263-266.
11. Santosh Kumar. 2000. Teaching-learning media the means to an end. 2nd ed. 2000. In: Ananthkrishnan N, Sethuraman

- K R, Santosh Kumar. Medical Education. Principles and Practice. Second Edition. 2000:61-71.
12. Bartsch R.A, Cobern K.M. 2003, Effectiveness of Power Point presentation in lectures. *Computers and Education*. 2003;41:77-86.
13. Savoy A, Proctor R.W, Salvendy G. Information retention from Power Point and Traditional lectures. *Comput Educ*. 2009;52:858-867.
14. Purl D. An integrated problem based curriculum for biochemistry teaching in medical sciences. *Indian J Clin Biochem* 2002;17(2):52-9.
15. Bulstrode C, Gallagher FA, Pilling EL, Furniss D, Proctor RD. A randomized control trials comparing two methods of teaching medical students trauma and orthopedics: traditional lectures versus the 'donut round'. *Surgeon* 2003;1(2):76-80.
16. Fischer RL, Jacobs SL, Herbert WN. Small-group discussion versus lecture format for third-year students in obstetrics and gynecology. *Obstet Gynecol* 2004;104(2):349-53.
17. Gurpinar E, Musal B, Aksakoglu G, Ucku R. Comparison of knowledge scores of medical students in problem-based learning and traditional curriculum on public health topics. *BMC Med Educ*. 2005;5:7.
18. De Jong Z, van Nies JA, Peters SW, Vink S, Dekker FW, Scherpbier A. Interactive seminars or small group tutorials in preclinical medical education: results of a randomized controlled trial. *BMC Med Educ*. 2010;10:79.
19. Tayyeb R. Effectiveness of problem based learning as an instructional tool for acquisition of content knowledge and promotion of critical thinking among medical students. *J Coll Physicians Surg Pak*. 2013;23(1):42-6.
20. Dhaliwal U. A Prospective Study of medical students 'perspective of teaching – learning media: reiterating the importance of feedback. *Journal of Indian Medical Association*. 2007;105(11):621-636.
21. Kaharaman S, Cevika C, Kodana H. Investigation of university students' attitude to award the use of power point according to some variable, *Procedia computer science*. 2011;3:1341-1347.
22. Casanova J. & Casanova S. L. Computers as electronic blackboard: Remodeling the organic chemistry lecture. *Educom Rev*. 1991:31-34.
23. Schneider FB. A practical handbook for college teachers. Little, Brown and Company, Boston.1983.
24. Seval K.S. & Aylin P. A. The effect of power point preferences of students on their performance: A Research in Anadolu University. *Turkish Online Journal of Distance Education*. 2009;10(1):1302-6488.
25. Seth V, Upadhyay P, Ahmad M, Moghe V. An Assessment of Teachers' Preference for Lecture Delivery Methods in Medical Education: Educational and Reviews. 2010 Sep;5(9):533-537.