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### COMPARISON OF THE TRADITIONAL CHALK AND BOARD LECTURE SYSTEM VERSUS POWER POINT PRESENTATION AS A TEACHING TECHNIQUE FOR TEACHING GROSS ANATOMY TO THE FIRST PROFESSIONAL MEDICAL STUDENTS

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**ABSTRACT:** Traditionally and conventionally, gross anatomy is taught by lectures and cadaveric dissection and the lectures are taken with chalk and board (C&B) or chalk and talk method in, India. But there is always a debate over the most effective method of lecture delivery. **AIM:** The aim of this study was to compare the role and effectiveness chalk and board method versus power point presentation (Student's perception) as a lecture delivering method for teaching gross anatomy. **METHODS:** This was a questionnaire based study where 140 out of 150 first professional MBBS students of Medical College Jammu, were asked to fill anonymously a questionnaire about their perceptions of these two lecture delivery methods. The results were analyzed to see if there was any preference of students for any particular method. **RESULTS:** The majority of the medical students (90.7%) preferred PPT presentations, while only 9.3% of students preferred the lectures using chalkboard method. **CONCLUSION:** Most of the students clearly preferred and accepted the use of PPT presentations, as compared to conventional board teaching for delivery method. So teaching gross anatomy should be carefully amalgamated with use of power point in lecture hall. **KEYWORDS:** Medical education, lecture delivery methods, PowerPoint presentations (PPT), anatomy teaching, chalk and board.

**INTRODUCTION:** Anatomy provides the very basic platform for learning to all the clinical branches of medicine. Various methods of teaching anatomy to the medical students include using dissection on cadavers, didactic lectures, prosecutions, using models, computer assisted learning (including slides and videos), the use of living people and radiology, use of active demonstration and small group etc.<sup>1</sup>

Although discussion methods in small groups appear to be a superior method, but in India, because the number of students attending medical schools is too large in comparison to the teaching staff available. Hence, the lecture remains the mainstay of the teaching method, so it is immensely important that it should be as effective as possible.<sup>1</sup>

For many decades the traditional didactic lectures have been the most popular mode of teaching gross anatomy, where a teacher delivers a well prepared lecture orally using black board and chalk to draw the diagram and important points and tries to explain the complex concepts. It has been a universally accepted way of teaching, and adopted in almost all universities, including medical ones. But, there has been a continuous debate on how to teach gross anatomy and what is the most effective method of delivery of lectures. Moreover the time spent on learning anatomy has been decreased from 1.5 yrs to 1 year; therefore teacher of anatomy constantly needs to upgrade him or

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herself with the changing demands of these times.<sup>2</sup> So teaching method is changing more towards more technology oriented method like Power point presentation.

Power point (PPT)-based lectures are increasingly being delivered in medical colleges as in other colleges and universities. However, educationists are divided on the superiority of PPT with respect to the traditional chalk and talk method. Various studies have been conducted to compare the effectiveness of lectures using power point (PPT) or overhead projector (OHP) with those using chalk and board. However there is a mixture of views based on the studies and it is not clear whether a particular lecture delivery method is superior to others. Moreover, most of these studies have been conducted in the developed countries and the area has not really been explored in the developing countries where factors like power disruptions are important considerations.<sup>3</sup>

In our college the current existing practice of lecture delivery is by conventional chalk and board method and very rarely power point presentations. Hence there is always a need to understand the actual perception of the students regarding their preferred method (Chalk and board and power point presentation) for lecture delivery and that is why we did this study to know students preferred lecture delivery method so that their preferred method can be adopted into routine teaching practice to make these lectures more effective.

Therefore we conducted this study in a medical college Jammu, India, to assess the students' perceptions and preference of the lecture delivery method, PPT presentations compared with the traditional chalk and talk method.

Using an anonymous questionnaire to the first year MBBS professional students they were asked to compare these two methodologies, and then results were analysed and compiled accordingly.

**MATERIALS AND METHODS:** In our college the routine lecture method for teaching anatomy but Students were given few lectures by power point presentation and then a pre-structured questionnaire-based study of the students of first professional MBBS in Govt. medical college in Jammu, India, in the department of anatomy was conducted.

After a short briefing in the class about the study, verbal consent was obtained from students to ensure their volunteer participation and then the questionnaire was circulated to all the students of that particular batch.

These questions were pertaining to different aspects of lecture and overall satisfaction of the students with the method of lecture delivery. Students were supposed to choose one of the two methods for each aspect of the lecture, to know their preference for a particular type of teaching methodology; chalk and board or power point.

For each of these methods, the students were asked mark (√) for their preferred method regarding following aspects of lecture delivery (Table.1). Each aspect will carry one mark.

**SAMPLE QUESTIONNAIRE:** Showing different aspects of lecture and the type of delivery method, students are supposed to mark their preferred method in respective column. C&B (chalk and board), PPT (Power point Presentation)

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	C&B	PPT	Marks for C&B	Mark for PPT
1. With which method lectures was organized and structural?				
2. Which method was more clear regarding the lecture contents?				
3. Clarity of new terms and spelling was better with which method?				
4. Clarity of diagram was better with which method?				
5. Method which increased the visibility of lecture?				
6. Which method was more understandable and better pronunciation?				
7. Which method was more interest stimulating?				
8. Which method had more reproducibility of text and diagram?				
9. In which method you were able to take my notes/diagrams more easily?				
10. Which method was able to integrate text with figure in a better way?				
11. Which method had better continuity of lecture?				
12. Overall satisfaction and effectiveness of the lecture?				

A total of 140 medical students (67 males and 73 females) participated voluntarily in the study and completed the questionnaire.

The result was tabulated and each aspect of lecture and its delivery method was compared using the sum of the score obtained for each method. The above parameters were analyzed and the overall preference of the students is assessed after compilation of these parameters by summing up the marks for each method.

Also it was analysed whether there is a preference of any particular method for any particular aspect of lecture.

**RESULTS:** A total of 140 (93.3%) out of 150 students of first professional MBBS, filled up voluntarily the study questionnaire. Out of 140 students 67 (47.8%) students were males and 73 (52.2%) students were females.

The students' overall preferences for each the lecture delivery method (given as a percentage) is as follows:

127 (90.7%) out of 140 students preferred PPT for overall effectiveness and satisfaction of the lecture delivery method 13(9.3%) out of 140 students preferred chalk board method for delivery of lecture.

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But there was clear preference by majority of students (80%) for chalk and board method for taking notes and for it to be more interactive method.

In the opinion of the majority of students, with the PPT method, the lectures are clear and understandable; they stimulate their interest and advance their understanding of the subject. With PPT the lectures were well-organized, clearer with respect to new terminology, spellings, pronunciation, clarity of diagrams, better visibility and have the continuity of lecture contents.

- However with chalk and board method they were able to take down the notes and diagrams more easily and this method was more interactive.
- The majority of the students rated PPT-based teaching higher in terms of all the parameters studied especially the overall effectiveness and students, satisfaction, as compared to the chalkboard except the ability to take notes more easily and the chalk and board method was more interactive.

**DISCUSSION:** Anatomy has been the basic backbone of medical education for hundreds of years. Good knowledge of anatomy plays a vital role in proper understanding of any other branch of Medicine.

Various methods,<sup>4</sup> of teaching anatomy include lectures through chalk and board method, then the cadaveric dissection method, power point presentation and ultrasound imaging method. The traditional and the most frequent method used for teaching anatomy is the chalk and board method. While taking lecture the important terminology and sentences are noted down on the blackboard and necessary diagrams are also drawn using chalk on the blackboard.

During recent times there has been a major change in terms of methodology of teaching anatomy, due to time constrain and also due to rapid advances in information technology and change in the demand of medical professionals. Moreover there has also been shift in medical education from passive didactic and teacher control approach to active clinical based and student centred teaching.

The use of transparencies with an overhead projector (TOHP) also became popular. But the once-popular 35-mm slide projector seems to be headed for extinction.<sup>5</sup> Recently the use of electronic presentations has become common and Microsoft PowerPoint (PPT) is now the most popular method used electronic presentations.

PPT uses a well prepared, where a brief lecture is delivered and conveyed to the students. Hence today's advancing technology can be exploited to the advantage of both teachers as well as students. Recently use of power point presentation has been increased tremendously for classroom teachings in medical education.

But, there remains controversy and debate over teaching methods and about whether which mode of teaching anatomy will be preferred by students.

Various researchers in the world have studied the effectiveness of teaching tools (e.g.PPT) in different disciplines, like I.T., organic chemistry, chemistry, mathematics, Business and management.<sup>6</sup> In medical Sciences, similar work has been done in its different Branches and assessed the impact of the teaching methods on grades obtained in examinations. However this area appears to be not fully explored as far as teaching in anatomy is concerned.

Present study emphasize on the role and effect of power point presentation as a mean of delivering lectures to anatomy students as compared to the traditional lecture delivery by chalk and board method.

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The technology has been proved to be a boon for anatomists because transmission of visual information has a remarkable role in education of gross anatomy. Lecture can be delivered in more useful and constructive way.<sup>7</sup>

Some previous studies have found that students preferred PPT, while in others the students preferred traditional blackboard teaching to TOHP and PPT. One extensive study has suggested that the efficacy of PPT is case specific rather than universal.<sup>8</sup>

**ADVANTAGES OF CHALKBOARD METHOD:** In a study it was noted that the main reasons for liking lectures using chalkboard was that these contained natural pauses and breaks (e.g., during writing or rubbing out the blackboard) allowing students to follow the material and take down their notes and draw diagram, provided the handwriting is legible. A chalkboard may be said to be more student-centered while PPT is more teacher-centered.<sup>8</sup>

Thomas and Appala,<sup>9</sup> in a study noted that as per students' opinion, the explanations, clarity of concepts and learning to draw diagrams are better done on C&B than PPT. Teacher student interaction is better in C&B method. Thus students are active learners.

**DISADVANTAGE OF CHALK BOARD METHOD:** To draw exact and accurate diagram on black board with chalk is not easy for most of teachers and it can obviously be more time consuming.

150 students per year is a large number, and voice of every teacher may not reach effectively/audible to all the students, hence visualization along with lecture can be more effective and will help to expand the teaching methodology.

At times there may be few terms which are not easily transmitted to the students because of pronunciation or spelling problem and because of poor visibility, so with PPT, this problem can be taken care off.

Moreover with chalk and board, in many cases the hand writing of many teachers is not legible and more time is required to present the same information as compared to PPT.

**DISADVANTAGES OF PPT:** It is suggested that although PPT has some positive effects, however it does reduce the interactive discussion between teacher and students. In a study, one of the reasons that students preferred chalkboard teaching is that it gives better student-teacher interaction. With PPT method the students may become a passive observer rather than an active participant.<sup>9</sup>

Also PPT system can get adversely affected by power loss. This is important, especially in developing countries like India where factors such as limited infrastructure and an irregular power supply need to be taken into account (in contrast to the studies carried out in developed countries). Moreover student will not be able to take notes easily, through PPT.

**ADVANTAGES OF PPT:** The power point presentations attract the listeners make them more active in listening. The diagrams in the PPT can be clearly seen than the chalk method.

Use of various animation and other properties of PPT can make lectures more interesting for students. Hence students can be more attentive with such methods of teaching. It becomes more eyes catching.

PPT will also be of great help to teach students imaging anatomy including surface marking and gross and morbid anatomy.

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There is various well developed software available these days which can be easily used for teaching sectional, imaging anatomy. It will be of great help to learn exact relation of various structures to each other. It can leave a lasting impression on students mind.

A study has pointed out that in PPT the ability to integrate text, pictures, and images is a great advantage which improves the educative value of the subject. PPT encourages an active learning environment, increase the effectiveness of lectures, and lend clarity to the subject. By integrating text, pictures, videos and animation especially 3-D will be as close to the real anatomy as possible, which is almost impossible with the conventional method.<sup>8</sup>

With PPT method the diagrams can be displayed explained more accurately, which is a very important aspect of teaching anatomy. A proper drawing /figure are worth thousand words.

Teacher will act as a facilitator of the lecture contents rather than the means of dispensing lectures.

A well prepared PPT lecture can be really very impressive and interest generating for students. It makes easier to listen for students and to deliver and explain effectively by teacher and more over it helps to follow the lecture in a systemic manner.

Hence power point improves learning, invokes audience interest and aids.

Explanations of complex illustrations.

In our study, the students opined that in all parameters studied I. e. conceptual understanding, memorization and reproducibility of text information as well as diagram.

A study by Seth et al., 2010 (ref.6), reveals contradictory opinions of students of different branches of medicine. In their study, Majority of medical students preferred PPT while the Dental students opted for traditional C&B.

Each student will have different learning style or technique. Liking or disliking of any method of teaching by the students is dependent upon whether it is fulfilling their requisite or not, and the requirement student is not only to understand the subject but also to reproduce it in the exams to gain marks.

Though in the hands of a trained teacher any teaching aid would be appropriate and effective. But a method which should be reproducible for the majority of teachers so that it can meet the aspirations of students and to combat the disadvantages of the traditional methods

The effectiveness of the lecture depends upon the teacher, regardless of the teaching aid used Present study reflects the views of students regarding more use of multimedia in teaching Anatomy. Majority of students preferred power point as the mode of lecture delivery. Similar finding were also reported in various previous studies as well. Hence the educational value of the class can be enhanced by proper and intelligent use of both audio-visual aid and chalk board. Proper utilization of newer technologies along with the traditional teaching methods.

Will certainly lead to better understanding of gross anatomy and will eventually improve students' performance. Hence the advanced teaching methodologies help in learning anatomy in a better and an easier way.

**CONCLUSION:** Anatomy is the basic backbone of any medical branch. Hence learning anatomy in a proper and effective way is very important to build the basic block for any medical students. There are various methods of teaching gross anatomy like traditional lecture using chalk and board methods, using overhead projector (OHP) and use of power point presentation (PPT).



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In our study which compared the traditional and conventional chalk and board method with power point presentation, significant majority of students clearly preferred use of PPT presentations over conventional chalk and board method for delivering lectures while teaching gross anatomy.

Therefore, the present study, as well as many previous studies, does support the superiority of power point presentation (PPT) as lecture delivery method over the traditional chalk and board method.

Hence there is a need to upgrade and modernize our lecture halls and teachers to deliver lecture using PPT, so that the lectures become more effective. The study establishes and recommends that traditional method of lecture delivery in Anatomy should be replaced with power point presentations to meet the aspirations of students and to combat the limitations of chalk and board method.

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