

## ORIGINAL ARTICLE

# Perception of medical students on lecture methods: Power Point or Chalkboard?

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### ABSTRACT

**Aim:** Using chalkboard is a traditional method of lecture delivery. Use of power point is relatively new. Modern day teaching is always learner oriented. This study was aimed to assess perceptions of undergraduate students on these methods of lecture delivery in learning surgery. **Methods:** Study was done in a teaching hospital over a period of six months. Theory classes of 5<sup>th</sup> semester in surgery were taken alternately by using chalkboard and power point. At the end of the term students' perception was assessed on the basis of a questionnaire in Likert scale regarding lecture content, ability to take note, ability to take diagram, interesting nature of lecture, and advancement in understanding, stimulation of interest, clarity and understandability of lecture, clarity of work, audibility and on organization of lecture. **Results:** Favorable responses to chalkboard and power point were- informative content (72.2% & 92.6%), ability to take notes (66.67% & 79.63%), take diagram (67.6% & 71.3%), interesting nature of lecture (75% & 74.07%), advancement of student's understanding on subject (83.33% & 81.48%), stimulation of interest (77.78% & 62.96%), understandability (76.85% & 83.33%), clarity (58.33% & 85.19%), audibility (82.41% & 87.04%) and organization of presentation (79.63% & 83.33%). **Conclusion:** Medical students preferred power point over chalk and talk in terms of its informative content, ability to take notes and clarity of the presentation. Chalkboard scored over power point in developing interest in the subject and in advancing the students' understanding on the subject. A combination of both methods could be valuable.

**Keywords:** Perception, Medical Students, Lecture, Chalkboard, Power Point, surgery

### INTRODUCTION

Lecture delivery is a common mode of teaching known since the medieval period in Christian and Muslim universities.<sup>1</sup> The primary aim of lecture delivery is to increase understanding and retention

of concept of the subject. Blackboards were used as a tool in teaching science and medicine from the nineteenth century.<sup>1</sup> Because of advancement of technology new tools are now available. Amongst them are 35-mm slide projector, transparencies with an overhead projector (OHP) and Microsoft Power Point presentation (PPT).<sup>2,3</sup> While attending a lecture a student uses both his visual and auditory senses to grab information.<sup>3</sup> All these tools including traditional blackboard presentation fulfill this criterion.

In learning process electronic tools of teaching are gaining popularity day by day. The initially popular overhead projector and 35- mm slide projector are rarely used now a day. Power point presentation is now commonly used as a teaching tool in delivery of lecture.<sup>4</sup> The efficacy of these tools in learning process has been observed from the teacher's point of view in many studies.<sup>5-8</sup> Many other studies observed the effectiveness from learner's perspectives. There is no study available from this region on the perception of undergraduate students on these two tools of lecture delivery in learning surgery. Therefore this study is planned with an aim to find out the perceptions about these two common tools used in medical institutions for undergraduate teaching.

### METHODS

The study was conducted in the department of surgery of a medical college in Assam. Didactic lectures for fifth semester students were taken weekly for a period of six months using chalk and board and power point presentation alternately. At the

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end of the term the students were asked to fill up a questionnaire made specifically for this purpose. There were ten questions which enquired about their views and perception on the methods of the lecture delivery, viz. Chalk and Board and PowerPoint presentation. The questionnaire was taken from an earlier study done by Seth et al.<sup>9</sup> A five point ‘Likert Scale’ was used to record their responses against each question as Strongly disagree-1, Disagree-2, Neither agree nor disagree-3, agree-4 and strongly agree-5.<sup>10</sup> The questions were-

Lecture content is informative

I can take my notes

I can take diagrams

The lecture is interesting

The lecture advanced my understanding on the subject

Lecture stimulated my interest

Lecture is clear and understandable

Board work/PP work clear

Lecture is audible

Lecture is organized

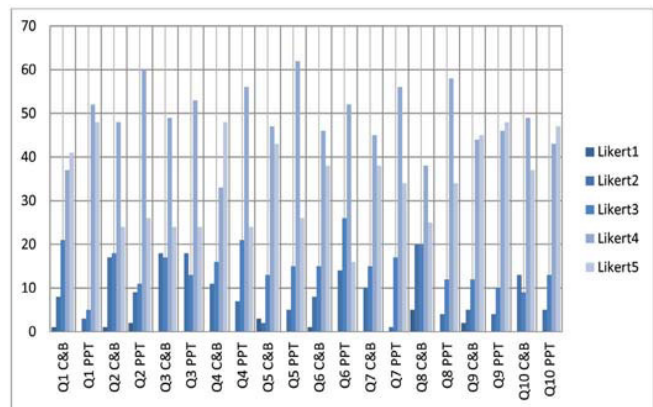
Students were briefed about the questions and interviewed in relevance to the questionnaire. The responses were collected without having the responder’s name or any identification sign in it. Responses were analyzed against each parameter and the preference of the student is measured by method of weighted average regarding both the methods of lecture delivery.

**RESULTS**

One hundred and fourteen students participated in the study. The questionnaire was found to be incompletely filled up by six students. They were excluded from the study and a total number of 108 students were included in the study. There were 65 males and 43 females. Likert scale 5 and 4 were considered as favorable response to the question concerned in relation to chalkboard or Power Point presentation. (Table-1)

**Table1** Responses in Likert scale

Questions	Chalk and Board					Power Point				
	LS-1	LS-2	LS-3	LS-4	LS-5	LS-1	LS-2	LS-3	LS-4	LS-5
Lecture content informative	1	8	21	37	41	0	3	5	52	48
I can take my notes	1	17	18	48	24	2	9	11	60	25
I can take diagrams	0	18	17	49	24	0	18	13	53	24
The lecture is interesting	0	11	16	33	48	0	7	21	56	24
The lecture advanced my understanding on the subject	3	2	13	47	43	0	5	15	62	26
Lecture stimulated my interest	1	8	15	46	38	0	14	26	52	16
Lecture is clear and understandable	0	10	15	45	38	0	1	17	56	34
Board work/PP work clear	5	20	20	38	25	0	4	12	58	34
Lecture is audible	2	5	12	44	45	0	4	10	46	48
Lecture is organized	0	13	9	49	37	0	5	13	43	47

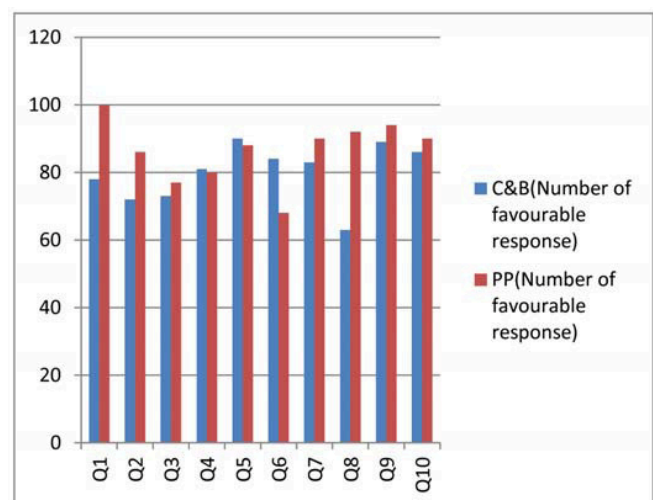


**Figure 1** Responses to questions in Likert scale

The medical students preferred power point over chalk and talk in terms of its informative content, taking notes from the presentation and clarity of the presentation. It had a slight edge over Chalk and Board in terms of taking diagram, understandability, audibility and organization of the presentation. On the other hand students preferred Chalk and Board over Power Point presentation in terms of stimulating the interest of the student on the subject. Chalk and Board had a slight edge in terms of its interesting nature of the lecture and advancement of the students’ understanding on the subject (Table 2, Figure 1).

**Table 2** Favorable responses to chalk and board and power point presentation

Questions	Chalk & Board (favorable response) Number & % of students	Power Point (favorable response) Number & % of students
Lecture content informative	78(72.2%)	100(92.6%)
I can take my notes	72(66.67%)	85(78.7%)
I can take diagrams	73(67.6%)	77(71.3%)
The lecture is interesting	81(75%)	80(74.07%)
The lecture advanced my understanding on the subject	90(83.33%)	88(81.48%)
Lecture stimulated my interest	84(77.78%)	68(62.96%)
Lecture is clear and understandable	83(76.85%)	90(83.33%)
Board work/PP work clear	63(58.33%)	92(85.19%)
Lecture is audible	89(82.41%)	94(87.04%)
Lecture is organized	86(79.63%)	90(83.33%)



**Figure 2** Comparison of favorable responses to chalk and board (C&B) and power point presentation (PP)

## DISCUSSION

Modern teaching learning process is more learners oriented. That is why it is necessary to know about students' perception in regard to different tools used in lecture delivery system. The 35-mm slide projector was once popular. But, it is now heading towards extinction.<sup>9</sup> The use of TOHP is also gradually decreasing. Instead the use of power point presentation is gradually increasing. Some studies show that the learner prefers chalk and presentation over PPT presentation.<sup>11-15</sup> On the other hand some studies show that the students prefer PPT presentation over Chalk and Board presentation.<sup>9, 16-19</sup> A study showed equal preference by the students to both methods.<sup>19</sup> Preference to combined methods was highest in some studies.<sup>21,22</sup>

Lectures are efficient means of providing knowledge and concepts to a large group and the students should receive information from the lectures. In this study power point (92.6%) was found to be better than chalk and board (72.2%) in this regard. Studies show that most of the students felt that chalk and board was ineffective in demonstration of clinical conditions and in covering more subject per lecture.<sup>14,23</sup> It is seen that power point can cover more subject per lecture.<sup>14, 16, 23</sup> Summarization is better in power point presentation.<sup>14,23</sup> On the other hand chalk and board provide less diagrams and information. In another study the learners have shown preference to use of mixed tool (55.1%) over chalk and board (9.2%), overhead projector (20.4%) and power point presentation (15.3%).<sup>24</sup>

Ability to take notes in a class is an important factor for the learner. It helps in revision of the class and future studies. In this study it was seen that power point presentation is better than chalk and board presentation from the viewpoint of the learner (79.63% vs.66.67%). Lalvarmawi F et al found that students preferred power point over chalk and board in taking notes.<sup>16</sup> Petimani and Adake found preference of power point over chalk and board (51% vs. 46.9%).<sup>23</sup> A clear preference to chalkboard (80%) in taking notes was seen in one study.<sup>24</sup> In a study done by Saha N et al students considered mixed aid(51%) as best in taking notes followed by overhead projector(25.5%), power point (13.3%) and chalk board (10.2%).<sup>21</sup> The commonly cited reason for preference to power point is legibility of the notes. The main reasons for liking chalk and board was because it allowed sufficient time to take down notes and power failure did not interrupt a lecture like it does in a power point presentation.<sup>6</sup>

Students considered ability to take diagram from the presentation as an advantage. Students preferred power point presentation in our study for this purpose. But, the difference in preference was not high (71.3%vs.67.6%). Lalvarmawi F et al showed students' preference to power point.<sup>16</sup> Petimani and Adaki showed preference for chalk and board in taking diagrams.<sup>23</sup> Saha N et al showed that students preferred power point presentation (28.6%) over chalk and board (6.1%) for better perception of diagram although in his list overhead projector preference (41.8%) was highest.<sup>21</sup> Shaguphta T Sheikh showed that 81.65% of the students preferred chalk and board for copying diagrams. But, 81.3% of students felt that for demonstration of three dimensional figures power point presentation is better.<sup>14</sup>

For a student if the lecture is interesting learning becomes easier. Parvin R et al observed that students felt that lecture was more interesting with chalk and board.<sup>25</sup> It was because a teacher could use some extempore method in chalk and board method.<sup>25</sup> In this study chalkboard was preferred over power point in this regard. But, the difference was very minimum (75% vs.74.07%).

Student prefer chalk and board for advancing the understanding on the subject as it contained natural pause and break during writing and rubbing the board which allows the students to follow the material and take down the notes.<sup>7</sup> A study conducted in Bangalore during 2011-2012 considered blackboard teaching as most satisfactory because students can follow the teaching and understand the concept effectively.<sup>13</sup> In our study students preferred chalk and board for advancement in learning. But, the difference with power point presentation was minimum (83.33% vs.81.48%). Florence et al and Amane HS et al showed students' preference to power point over chalk and board teaching.<sup>16, 26</sup>

The delivery of the lecture should be effective in stimulating the interest in the learner. The method of lecture delivery plays a great role in this regard. In this study chalk and board was preferred by the students over power point presentation (77.78% vs. 62.96%). Studies showed that students preferred chalk and board because it facilitated the interaction between the teacher and the student.<sup>14,23</sup> Saha N et al showed that students felt that stress on important points could be given by the teacher more in chalkboard presentation (46.9%) than power point (10.2%), overhead projector (10.2) or mixed aid presentation(32.7%).<sup>21</sup> Petimani and Adake found that students preferred chalk and board over power point (77.5% vs. 22.04%) in stimulating their interest.<sup>23</sup> A chalkboard presentation allows spontaneity, flexibility, and nonlinearity.<sup>9</sup> A chalkboard presentation is helpful to follow and a good eye contact with the teacher stimulates interest.<sup>25</sup> Some studies have shown that the interactive features of blackboard have the potential to enhance the learning experience.<sup>27</sup> Garg et al commented that power point reduces the interactive discussion between teacher and students.<sup>28</sup>

In this study power point presentations were preferred by students as they were clear and understandable, though the difference with chalk and board was minimum (83.33% vs.76.85%). Preference to power point was seen studies done by Lalvarmawi F et al and Amane HS et al.<sup>16, 26</sup> Preference to chalkboard for its clarity and understandability was observed by Petimani and Adaki.<sup>23</sup> Saha N et al showed that for understanding the lecture topic chalkboard (12.2%) and overhead projector (12.2%) were preferred than power point presentation (5.1%), although the use of mixed aid (70.4%) topped his list.<sup>21</sup>

In this study students preferred power point presentation over chalkboard for clear work of the presentation (85.19% vs. 58.33%). This observation was also seen in other studies.<sup>25, 26</sup> Teacher's bad handwriting is a major cause of low preference to chalkboard presentation.<sup>25,29</sup>

Student preferred power point presentation over chalk and board on the audibility of the lecture. The difference is minimum (87.04% vs. 82.41%). This was also observed in the study of Amane HS et al.<sup>26</sup> Though the audibility mainly depends on teacher's personal capability power point presentation perhaps gives relief from the distraction from repeated writing and rubbing on the board.

The students felt that a power point presentation is slightly more organized than chalkboard in our study (83.33% vs. 79.63%). It was also observed in other studies.<sup>16, 26</sup> Petimani and Adake observed student's perception towards chalk and board in organizing the lecture.<sup>22</sup>

The overall preference of students was towards power point presentation in this study. This highlights the importance of using technology into the classroom. This was observed in many such similar studies done in last decade.<sup>9,16-19,24,29</sup> The study showed that medical students preferred power point over chalkboard in terms of its informative content, ability to take



notes and clarity of presentation. It had an edge over chalkboard in terms of taking diagram, understandability, audibility and organization of presentation.

Chalkboard was preferred by the students as a method of lecture delivery in many studies.<sup>6,11,14-15,25</sup> In this study, the students showed preference to chalkboard over Power Point presentation in terms of stimulating the interest on the subject. Chalkboard had a slight edge over power point in terms of interesting nature of lecture and advancement in understanding the subject.

The results of the present study suggest that both the tools of teaching have some strength and limitations. In a study majority of students opined that both the lecture delivery methods should be used simultaneously in the class.<sup>7</sup> Combination of both the methods were suggested in some studies.<sup>21,22,29,30</sup>

### CONCLUSION

The medical students preferred power point over chalk and talk in terms of its informative content, ability to take notes and clarity of the presentation. It had a slight edge over chalkboard in terms of taking diagrams, understandability, audibility and organization of the presentation. On the other hand students preferred chalkboard over power point presentation in terms of stimulating the interest of the student on the subject. Chalkboard scored over power point in developing interest in the subject and also in advancing the students' understanding on the subject.

This study highlighted the importance of using power point presentation in the classroom. At the same time it showed that students' perception on chalkboard in some areas were favorable. A combination of both these methods could be valuable.

**Conflicts of interest:** None declared.

**Contribution of Authors:** We declare that this work was done by the authors named in this article and all liabilities pertaining to claims relating to the content of this article will be borne by the authors.

**Ethical clearance:** Not required.

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