

*Full Length Research Paper*

# **An assessment of teachers' preference for lecture delivery methods in medical education**

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The aim of the study was to assess the medical teachers' preference for various lecture delivery methods like the lectures using chalkboard, utilizing transparencies with an overhead projector (OHP) or lectures using a PowerPoint presentation and their frequency of use of teaching aids. The faculty of the medical college was asked to fill in the structured questionnaire about their utilization and perception of the three methods of lecture delivery, viz: Chalkboard, Transparencies and OHP (TOHP) and the PowerPoint (PPT) presentation. They were also interviewed further in the light of analysis of the questionnaire. Majority of the teachers, that is, 48.66% used chalkboard for teaching, 29.95% of teachers used TOHP and 21.39% used PPT presentations in during lecture. As far as the teachers' preference is concerned, 40.47% of them preferred chalkboard, 28.43% of teachers preferred TOHP and 31.1% of teachers preferred using PPT presentation during lecture. Some important comments of the teachers were also recorded on interview. The conclusion of the study is that the dominant form of lecture delivery is still the chalk and talk approach. However, other teaching aids have their unique advantages and supplementing chalkboard with PPT or TOHP enhances the impact of the lecture.

**Key words:** Audiovisual aids, teaching methods, medical education, lecture delivery, powerpoint, OHP, chalkboard.

## **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. Although discussion methods in small groups appear to be a superior method of attaining higher-level intellectual learning (Cannon, 1988), it is almost inevitable that the medical students will experience lectures, as the number of students attending is too large in comparison to the teaching staff available. Hence, as Walton (1972) notes, the lecture is here to stay, so it is imperative that it should be as effective as possible.

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). A chalkboard is uniquely effective as a medium of class-

room instruction and has been used commonly in the lectures, while the use of transparencies with an overhead projector (TOHP) is also popular (Estes et al., 2009). 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. The once ubiquitous 35-mm slide projector seems to be heading for extinction (Prasad et al., 2000).

Although a good teacher with lack of audiovisual aids will be better received than the poor teacher with the best audiovisual aids (Prasad et al., 2000), learning with audiovisual aids does seem to have a great impact on students (Sharma et al., 2004). Educationists are divided on the superiority of chalkboard teaching or PPT or TOHP 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".

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Considering the diverse views about the teaching methodologies, in the present study, we assess the teachers' preferences for various lecture delivery methods (like the lectures), using chalkboard, utilizing transparencies with an overhead projector or lectures using PowerPoint presentations, in order to know the teachers' opinions of different lecture delivery methods and find out the frequency of use of teaching aids.

## MATERIALS AND METHODS

A questionnaire based survey of the faculty members teaching medical undergraduates in a private medical college was conducted after getting permission from the principal and IEC of the college. The questionnaire was circulated to all the teachers in the college and a total of 31 teachers filled the questionnaire.

In this medical college, the teachers deliver lectures using either chalkboard or transparencies and overhead projector (TOHP) or PowerPoint presentations (PPT). The teachers were asked to fill in how often they use a particular audiovisual aid in the undergraduate teaching. They were asked to assess their utilization, as never (0), rarely (1), sometimes (2), frequently (3) or always (4). The method of weighted average is used to know the frequency of actual use of the teaching aid.

The teachers were also asked to fill in the structured questionnaire about their views and perception of the three methods of lecture delivery, viz: Chalkboard, transparencies and OHP (TOHP), and the PowerPoint (PPT) presentation. About each of the three methods, the questionnaires asked the teachers to give their opinion about each of the following points as strongly agree or agree or no opinion or disagree or strongly disagree. The responses could be augmented by written comments:

1. The lectures are well organized.
2. The lectures are clear and understandable.
3. The lectures stimulate students' interest.
4. The lectures encourage students' participation.
5. The lecture delivery is interesting and engaging.
6. The lectures stimulate students' interest.
7. I am able to convey my diagrams completely .
8. The students are able to make their notes/diagrams.
9. I am able to relax more during the lecture.
10. I find flexibility to amplify a particular point.

The teachers were also interviewed further in the light of the analysis of questionnaire. The aforementioned ten parameters were analyzed on the basis of scale of grading, that is, 2 (strongly agree), 1 (agree), 0 (no opinion), -1 (disagree) and -2 (strongly disagree). The sum of all the teachers grading on each parameter was taken for calculating the final weighted score. Teachers' preference is estimated using the method of weighted average in order to find the weighted score of each parameter regarding different lecture delivery methods.

## RESULTS

### Teachers' utilization of the different lecture delivery methods

The frequency of using a teaching aid is as follows:

1. Chalkboard: 48.66%
2. TOHP: 29.95%

3. PPT: 21.39%

### The opinion of majority of teachers

1. With chalkboard teaching, the lectures are clear and understandable, it stimulates student's interest and encourages their participation, and the students are able to make their notes/diagrams. Also teachers find flexibility with chalkboard to amplify a particular point.
2. With PPT and TOHP, it is possible to relax more during the lecture and it is easier to convey the diagrams completely
3. With TOHP, it is easier to convey their notes totally.
4. With PPT, the lecture delivery is more interesting and engaging (Tables 1 and 2. Figure 1).

### Teachers' preference of the different lecture delivery methods

The teachers' preference for a teaching aid is as follows:

1. Chalkboard: 40.74%
2. TOHP: 28.62%
3. PPT: 30.64%

### Important comments given by the teachers on interview

#### *About the use of chalkboard*

1. The main reasons for liking chalkboard are that the power failure could not interrupt lecture and it encourages students to take down the notes and diagrams as the students follow the hands of the teacher and the lecture contains natural pauses and breaks.
2. The main reasons of disliking chalkboard are that one need a good handwriting and sometimes the blackboard is dirty specially if used several times in the day and at times chalk could be faulty and it soils the clothes. Also less number of diagrams can be given and lesser information can be covered in the lecture.
3. It becomes more effective when supplemented with other audiovisual aids.
4. While rubbing the board, students may get distracted.

#### *About the use of TOHP*

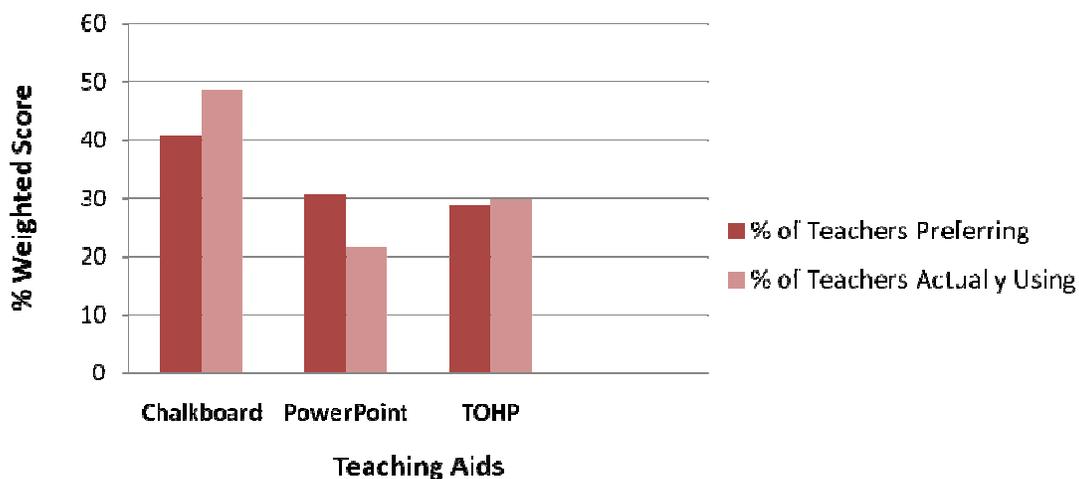
1. The main reasons of liking TOHP are that it is easy to operate and easier to give notes and diagrams and more topic can be covered in a lesser time and it avoids the issue of dirty blackboard and faulty chalks
2. The main reason of disliking TOHP is that power failure can interrupts the lecture
3. it can be used with blackboard to elaborate some points
4. Often more, information presented in a single

**Table 1.** Teachers' opinions of the lectures using different delivery methods.

Parameter	Weighted Score		
	Blackboard	OHP	PowerPoint
The lectures are well organized	30	33	35
The lectures are clear & understandable	34	26	27
The lectures stimulate student's interest	30	12	20
The lectures encourage student's participation	30	2	8
The lecture delivery is more interesting & engaging	19	11	25
I am able to convey my notes totally	20	28	22
I am able to convey my diagrams completely	15	27	27
The students are able to make their notes/diagrams	29	17	0
I am able to relax more during the lecture	0	14	14
I find flexibility with chalkboard to amplify a particular point	35	0	8

**Table 2.** Teachers' preference and teachers actually using the particular teaching aid.

Teaching aid	% of teachers preferring	% of teachers actually using
Blackboard	40.74	48.66
PowerPoint	30.64	21.39
TOHP	28.62	29.95

**Figure 1.** Teachers' utilization and their preference of the particular teaching aid.

transparency distracts the students and makes the lecture monotonous

5. The issue of poor handwriting can be avoided by printing e.g. by using PPT printouts and photocopying on the transparencies

#### About the use of PPT

1. The main reasons for liking PPT are that it is easier to

give notes and diagrams, avoids the issue of dirty blackboard and faulty chalks. Also it has exclusive advantages including presentation of 3D images, pictures, sequence of images, and videos.

2. The main reasons for disliking (PPT) are that it requires darkness in the room, it takes longer time to set up the projection and power failure can interrupts the lecture. Also for students, it is difficult to take down the notes and diagrams and students become a passive observer rather than an active participant.

3. Judicious use of animations, make it more interesting and have a lasting impact
4. It is ideal for fast revision and quick overview of the subject and for seminars and CME presentations.
5. Presentations should contain more of diagrams and less text

## DISCUSSION

At present, majority of the faculty members are using chalkboard and have shown more confidence with using this traditional medium of instruction.

An interesting point noted in the study was that although 48.66% of teachers use chalkboard, only 40.47% of teachers actually prefer it. In contrast to this only 21.39% of teachers use PPT presentations, while 31.1% prefer using this medium. The reason for this difference in utilization and preference is that many teachers expressed that they consider PPT is to be more interesting, but due to unavailability of the LCD projector or computer, they have the only option of using the chalkboard. Some teachers also said that although with PPT, the diagrams and pictures can be better shown, but they are not familiar with using this electronic medium.

There is no significant difference in the utilization of TOHP (28.43%) and its preference (29.95%) as this machine is readily available in most of the classrooms and is easy to use.

In our study, we found out that with blackboard teaching, the lectures are clear and understandable, it stimulate student's interest, encourage their participation, students are able to make their notes/diagrams and most importantly, power failure could not interrupt lecture. This endorses the views of Estes et al. (2009) that a chalkboard allows spontaneity, flexibility and non linearity and it does not get affected by broken glass (TOHP), powerless (PPT & TOHP) and can be used when there is lights [4 Net reference]. Also in our study majority of teachers find flexibility with chalkboard to amplify a particular point. The same point is observed by Shallcross and Harrisson, (2006) who also add that a lecture is most effective, when it starts at a basic point of the course, which students can understand and then lead them gradually through the new and more difficult points.

With TOHP, teachers feel that it is easy to operate and easier to convey the diagrams, but it depends on electricity and if more information is presented in a single transparency, it distracts the students and makes the lecture monotonous. Shah (2006) had similar views and also adds that an overlay technique is a very effective method of "Building Up" or Dissecting Down" a complex diagram. None of the teachers in the medical college here commented on using this technique, though some teachers said that they use PPT animations for this purpose.

We have noted that in teachers' opinion, PPT makes

the presentation interesting and increases the visual impact of the subject. They also pointed out its unique advantages including presentation of 3D images, pictures, sequence of images, and videos. Mayer and Anderson (1992) reported similar views that PPT gives the ability to integrate the text, pictures and images, thus improving the educative value of the subject. PPT encourages active learning environment, increase effectiveness of lectures and lend clarity to the subject (Hunt, 1998; Sammons, 1997; Rossen et al., 1997). Also Ernest et al. (1998), recommends combining lectures with PPT to improve the intellectual skills and to do away with the monotony of lectures.

Main disadvantages of PPT pointed out by teachers include difficulty for students to take down the notes and diagrams, and students becomes a passive observer rather than an active participant as noted earlier by Casanova and Casanova (1991) and Garg et al. (2004). In this regard Creed (1998) also argues that PowerPoint is teacher-centered.

Teachers that are well familiar with PPT opined that judicious use of animations, make it more interesting and have a lasting impact. Ruffini (2009) also suggests the use of animations to support student learning and he added that PPT is rarely used to its full advantage by the faculty.

While interviewing, teachers also shared their experience that, while using TOHP or PPT, chalkboard can be effectively used to elaborate some points. Also while using mainly the chalkboard, TOHP or PPT can be usefully combined to give diagrams or highlighting points or summarize. Pence (1997) has also noted that the combination of PowerPoint with lecture create an especially effective educational environment.

Medical teachers unlike most other teaching professionals are unique in that no special training in teaching technologies is given prior to their recruitment. Under these circumstances, their ability to teach is largely dependent on self training either by observing other teachers or by trial and error (Ananthakrishnan, 1993). In our study, for example, many teachers wanted to use PPT, but due to lack of training, they have no choice than to use chalkboard. This highlights the need of formal training in teaching technologies to develop good presentation skills.

## Conclusion

Having analyzed questionnaires and carried out interviews, we conclude that the dominant form of lecture delivery is still the chalk and talk approach. However, other teaching aids have their unique advantages and supplementing chalkboard with PPT or TOHP enhances the impact of the lecture. The study also highlights the need of formal training in teaching technologies to develop good presentation skills.

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