

# ATTITUDE OF 1<sup>ST</sup> MBBS MEDICAL STUDENTS ABOUT TWO DIFFERENT VISUAL AIDS IN PHYSIOLOGY LECTURES

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**Background:** To enhance successful communication, medical teachers are increasingly using different visual aids. To determine medical students' perception of two such visual aids (black-board, overhead projector) and to generate recommendations for their optimal use, a questionnaire-based study was carried among 1<sup>st</sup> Year MBBS students of Government Medical College Kota, India. **Methods:** Study was undertaken on 100 Medical students of 1<sup>st</sup> Year MBBS of 2006 Batch. For this, we exposed them to black-board (BB) and overhead projector (OHP) lectures in classroom separately and sometime both together for duration of 1 year. After this they were asked to complete a questionnaire regarding two visual aids of teaching. **Results:** Fifty-four percent students favoured BB teaching as a reliable teaching aid compared to over head projector OHP teaching ( $p>0.05$ ). BB teaching was considered as good, interesting, interactive type of teaching aid ( $p<0.001$ ), and 67.1% students prefer a combined teaching using both BB and OHP teaching. Gender difference was also observed. Male students considered OHP teaching as a reliable, interesting, interactive teaching mode ( $p<0.001$ ), while female students consider BB teaching a reliable mode. Both Hindi medium and English medium preferred BB teaching. **Conclusion:** The instructor must match the lectures with preferred visual aids to improve students' learning. It will also maintain interest and enthusiasm among the students.

**Keywords:** Black board teaching, Overhead projector teaching, Visual Aids

## INTRODUCTION

Faculty members must have content knowledge, pedagogical knowledge and knowledge of the learner and his/her characteristic to be effective teacher.<sup>1</sup> Most university faculty members have detailed content knowledge as a result of reading and studying avidly within their academic disciplines. However, obtaining knowledge of the learner and his/her preference is a vastly underutilized approach to improve classroom instruction.

To address this concern, faculty members should understand their students' learning attitude and learning style preferences. Learning style is defined as the manner and conditions under which the learner most efficiently and effectively perceives, processes, stores and recalls what they are attempting to learn.<sup>2</sup> Students learn best when they are engaged by material that is presented in variety of ways and formats.<sup>3</sup>

The field of learning styles is complex, with over 70 different learning styles models identified in a review.<sup>4</sup> These modalities represent numerous assumptions and focus on different aspects of the learner like cognitive personality style, information processing style or instructional preferences.

Generally students prefer to take new information in form of sensory modality. Three major sensory modalities are visual (V), aural (A) and kinaesthetic (K) collectively known as VAK.<sup>5</sup>

Traditional lectures have a place in well-designed curricula. The primary purpose of this mode of instruction is the delivery of information. In it the

instructor speaks for a specified period of time, while the students record what is said participation by students is generally minimal. This mode of teaching can be used in any size and often large classes.<sup>6</sup>

Lecturer appeal to those with strong verbal/linguistic skill. When combined with slides or figures drawn on the black board they also accommodate those with strong visual/spatial intelligence.<sup>7</sup> Overhead projector enormously expands the potential of the black board lecture. They can show any combination of text, tables, full colour pictures and diagrams.

Other than above two aids of teaching various others modes used in different colleges include LCD projectors and recently used Web-based teaching aids. This study was designed to evaluate the attitude of 1<sup>st</sup> Year MBBS medical students towards two different visual aids of teaching methodology in Physiology Department at Govt. Medical College Kota, Rajasthan. This study also investigates the influence of gender, locality and medium of instruction in school variation in their attitude.

## MATERIAL AND METHODS

A survey was undertaken among 100 medical students of 1<sup>st</sup> Year MBBS of 2006 batch after exposing them to different visual aids like black board and overhead projector in class room. Some lectures were absolutely on BB and some were on OHP modes and in some, both BB and OHP were used. Students were exposed for such visual aids for 1 year and then they were asked to complete a given

questionnaire, which asked them about these two (BB, OHP) visual aids of teaching.

A brief explanation of the aim of study was given to students without unfolding the probable results. In the questionnaire we asked their Name, Age, Sex, Medium of Education in school and their permanent address. Then they were assessed by means of a standardised Likert type Scale containing 10 items. The questions asked were:

1. Which visual aid is reliable type?
2. Which mode develops the ability to understand the topic better?
3. I prefer... ..
4. Which mode provides good learning experience?
5. Which is more interesting and interactive visual aid?

They were asked to grade each items using the following scoring system:

- 5-strongly agree
- 4-agree
- 3-neutral
- 2-disagree
- 1-strongly disagree

A few responses of questions were only on yes or no basis. These questions were:

6. Should BB teaching be integrated with OHP teaching?
7. Should seminars be conducted along with other mode of teaching?
8. Should computer assisted LCD projector teaching in future be included along with other mode of teaching?
9. Do you feel any difficulty from switching one mode to another within short duration?
10. Should the photo state material of topic be provided after teaching?

Out of 100 forms 15 were rejected due to overwriting and/or double entries. Results were

statistically analysed by using Mann Whitney Test as the test of significance.

## RESULTS

In Table-1 whole class students' attitude towards OHP and BB teaching aids are presented.

Fifty-four percent students favoured BB teaching aid as a reliable compared to OHP teaching ( $p>0.05$ , not significant). BB teaching was considered as good, interesting, interactive type of teaching aid and it was statistically significant ( $p<0.001$ ) as compared to OHP teaching.

Table-1 also shows a gender difference among medical students for assessment about BB and OHP teaching mode. Male students consider OHP teaching as a reliable, interesting and interactive teaching mode ( $p<0.001$ ) while female student consider BB teaching as a reliable mode.

Students coming from English and Hindi medium in their 12<sup>th</sup> class both favour BB teaching mode as a reliable preferable, interesting and interactive means of teaching aid ( $p<0.001$ ). Both urban and rural students favour BB teaching mode as a reliable and interesting and easy to understand compared to OHP teaching visual aid ( $p<0.001$ ).

Table-2 shows number and percentage of students who agreed to the questions asked about the BB and OHP teaching. Fifty-three (67.1%) students preferred a combined teaching aid, i.e., OHP teaching with the BB teaching and 82.4% students wanted LCD projector in near future as visual aid. Even they favoured seminars along with different teaching aids (82%). Most of the students (77%) did not feel difficulty in switching from one teaching mode to other during the delivery of lecture by teacher.

**Table-1: Attitude of 1<sup>st</sup> Year MBBS students towards BB and OHP teaching**

Question	Whole class		Boys		Girls		English medium students		Hindi medium students		Urban students		Rural students	
	BB	OHP	BB	OHP	BB	OHP	BB	OHP	BB	OHP	BB	OHP	BB	OHP
Reliable type of visual aid	54 <sup>⊗</sup>	45.95	46.3	53.7 <sup>†</sup>	69.23*	30.77	55*	45	55*	45	57.66*	48.33	64.71*	35.39
Which visual aid develops the ability to understand the topic better	64.33 <sup>⊗</sup>	35.14	68.51*	31.48	73.08*	26.92	75*	25	61.66*	39.33	63.33*	36.66	76.47*	23.53
I prefer ...	57.33 <sup>⊗</sup>	42.66	53.7*	46.3	65.38*	34.61	55*	45	56.66*	43.33	53.33*	46.66	64.71*	35.29
Good learning experience is from	63.85*	36.14	59.26*	40.74	69.23*	30.77	65*	35	66.66*	33.33	60.65*	39.34	64.7*	35.29
More interesting & interactive visual aid	57.14*	42.46	48.15	51.85 <sup>‡</sup>	69.23*	30.77	66*	34	53.33*	46.66	56.6*	43.33	52.94*	47.06

<sup>⊗</sup> $p>0.05$  on comparison to OHP, \* $p<0.001$  on comparison to OHP, <sup>†</sup> $p<0.001$  on comparison to BB. All figures are in percentage

**Table-2: Percentage of students agreed with questions asked in survey**

Questions	% of Students (n)
Integration of both visual aids	67.11% (53)
Seminars/Group discussions	82.0% (64)
Use of LCD projector in near future as visual aid	82.4% (65)
Difficulties in switching from one visual aid to other	23.0% (19)
Photocopy material to be provided	64.2% (52)

## DISCUSSION

The levels of student learning in the lecture are primarily the lower cognitive levels of knowledge and comprehension. In other words students expect to learn the information being presented so that they can repeat it later on. The lecture itself does not teach the students to analyse, it merely illustrates the process. How much the students learn from the model will depend both on the clarity with which instructor highlights the process and on the sophistication level of the listeners.

Every teaching methodology has its pros and cons. Effective lectures combine the talents of scholar, writer, producer, comedian, showman and researcher in ways that contributed to students learning as well stated by McKeachie.<sup>8</sup>

Lecture illustrates the process to be analysed and this mode of teaching can be used in any size and often large classes. But there is minimal participation of students learning from lecture, as it is one-way communication.<sup>6</sup>

Blackboard is most popular type of visual aid as it has easy access and relatively simply to use. It needs no special equipment except for chalk, blackboard and duster which are easily affordable. Thirty-five mm slide projector is costly and at present used less while OHP is simple to use but expensive as compared to BB.

In this study most of the students favoured BB teaching as a visual teaching aid instead of transparencies on OHP. The drawback, which students pointed in BB teaching, is that it takes time to draw a labelled diagram on board and during that time teacher's eye contact with students is broken. Even intricate and coloured figures are difficult to draw on blackboard.

Majority of the students favours mixing of transparencies as visual teaching aid with blackboard. Diagrams are simple to draw on OHP and projector is easy to operate and requires little practice to master. By using OHP, instructor faces the student continuously and eye contact is maintained throughout.

Boys consider OHP teaching a reliable and better mode of topic understanding, even they find this as more interesting and interactive than BB teaching. Girls consider BB teaching as best reliable mode of understanding the topic and consider it more interesting and interactive way of instruction.

As a whole, all students accept BB teaching as a good learning experience and results are significant ( $p < 0.001$ ) compared to OHP teaching. Majority of students coming from any medium of school or area of living wanted seminars to be

conducted along with the use of LCD monitors during lecture classes.

Among the class, 64.2% students want photocopy material of teacher's notes. Only 23% of students agree to find difficulty to switch from one mode to another during one hour of scheduled teaching. To counter the drawback of both visual aids in medical teaching there should be integrated means of each teaching.

When instruction in undergraduate courses matched students' learning style preferences, students achieved higher scores than when mismatched.<sup>9</sup> Rochford<sup>10</sup> found that using learning style responsive material to instruct remedial writing students at an urban community college resulted in significantly higher achievement. Miller<sup>11</sup> found that both students' examination scores and students' attitude towards learning were significantly higher when presentation was matched with student learning styles. Insight into the specific preference of individual classes would help instructors tailor both their presentation and methods of assessment for each individual class. In addition, the present study suggests that females prefer lectures with blackboard as visual aid compared to OHP teaching. This alone shows that there is influence of gender on learning style preference. Jill<sup>12</sup> also found gender differences in learning style preference among undergraduate physiology students. Instructors need to be cognizant of these differences and broaden their range of presentation accordingly.

An opposing view-point that exists in the literature asks whether it is the most advantageous to teach primarily using a mode that matches an individual's preferred learning style or whether a deliberate mismatch actually produce stronger results for the learner. Grasha<sup>13</sup> argued that an environment in which delivery of the material is matched to the learner's preferred style would eventually bore the student, causing the learner to disengage. A deliberate mismatch could prevent disinterest and stretch an individual to grow and learn. This was supported by research that showed that even individuals with strong learning style preferences preferred a variety of teaching approach to avoid boredom.<sup>14</sup> Kelly and Tangney<sup>15</sup> showed that students with low level of learning activity actually learned more when presented first with their least preferred material and resources.

It is important to note that the efficacy of mismatching as a primary strategy for improving student learning outcomes has not been shown.<sup>15</sup> Mismatching has been suggested as an occasional teaching strategy employed to stimulate, interest and not as an alternative or replacement for matching.

## CONCLUSION

We as teachers, need to consider different visual aids like BB, OHP, slides, LCD projector etc. and must organise our teaching to take advantage of the power that this approach provides so as to maintain interest and enthusiasm among the pupil.

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