

A Student's Prospective of Anatomy Lectures on Different Visual Aids.

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Abstract:

Background: To enhance the successful communication of medical teaching using different audiovisual aids

Objectives: To determine First year MBBS student's perception of anatomy using different audiovisual aids like Blackboard[BB], Overhead Projector Transparencies[OHPT] and Liquid Crystal Display[LCD], and generate recommendations for their optimal use.

Method: A Questionnaire based study was carried among the 100 first year students in Anatomy of MVJ Medical College, Bangalore after exposing them to different audiovisual aids like BB, OHPT, and LCD. A few lectures were absolutely on blackboard, and some were on OHPT and on LCD. Few classes were taken with mixed audiovisual aids. Students were exposed for such audiovisual aids for one year and then they were requested to complete a questionnaire. The Data collected was statistically analyzed by on simple Chi Square test

Results: 96 students completed the questionnaire. The results of the subjective assessment of the lectures showed that students preferred LCD or Power point media most, 55.2% of the students preferred LCD as the best mode for Anatomy Lectures and 67.7% of the students thought LCD was the most interesting & interactive mode for the anatomy lectures 95% of the students said yes to integrated modes of audio visual aids, out of which 61 % preferred BBT & LCD as the best of combinations of audio visual mode

Key words: BBT, OHPT, LCD, teaching learning methods

I. Introduction

Didactic lectures which are the traditionally in vogue, and are the most common methods in teaching-learning methods in use. Didactic lectures are powerful tools for getting across a large amount of theoretical information and are especially useful when a large number of learners to be taught at one time^[1]. In country like ours, it is almost inevitable that medical students will experience lectures, as the number of students attending medical schools is too large in comparison to the teaching staff available. Hence, the lecture is here to stay, so it is immensely important that it should be as effective as possible.

In recent year's undergraduate teaching have been revolutionized with adoption of new teaching learning methods like Overhead projectors Transparencies (OHPT), power point lectures on Liquid Crystal Display (LCD). Using these electronic media has become not only common but one of the guided media suggested by MCI. At present, Besides the Blackboard teaching (BBT), Overhead Projectors Transparencies (OHPT), and Liquid Crystal Display (LCD) are most common ways of lecture delivery. There are no conclusive study stating the superiority on one of the media

II. Materials And Methods

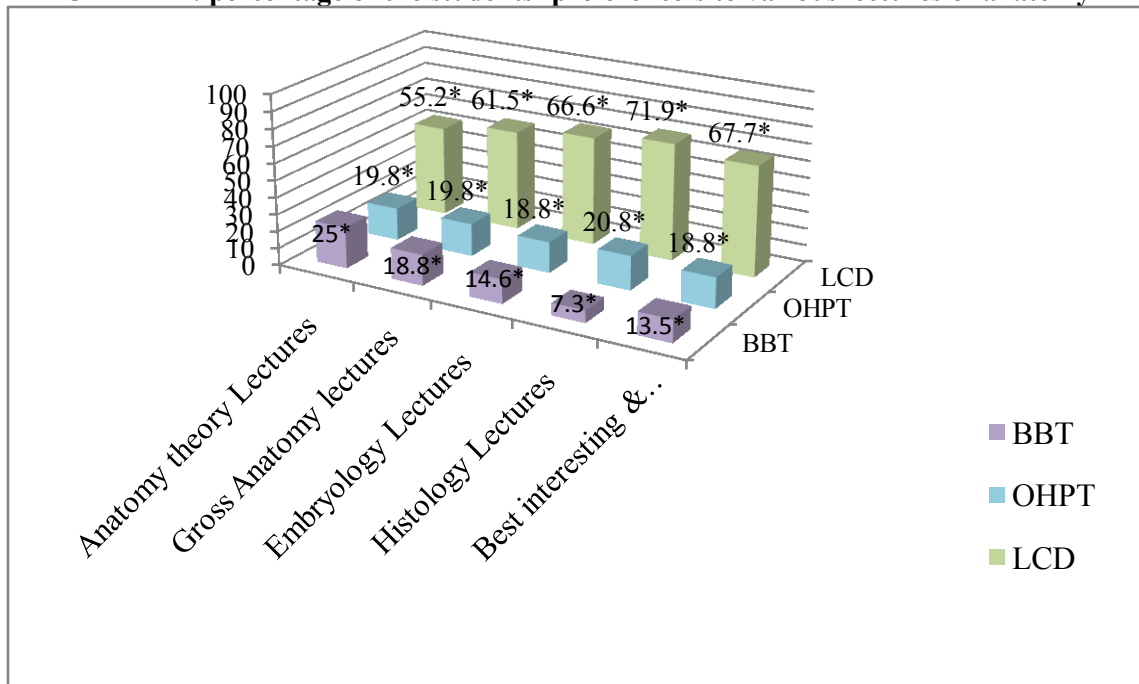
Students of Anatomy in 1st year MBBS batch of 2012-2013 were exposed to different Audio-Visuals aids of Lectures like Blackboard, OHP transparencies, LCD, some lectures were taken exclusively on Blackboard, some on OHP transparencies and some on PowerPoint using LCD. A questionnaire was prepared having 13 items covering the different aspects of lectures taken in anatomy. The questionnaire: Appendix I. The data collected was analyzed by using Statistical Package for Social Sciences SPSS version 17.0. The comparisons of the preferences of different Audio visual Aids was analyzed on applying Chi- Square test and was found to be statistically significant with p value <0.0001

III. Results

Out of the 100 students 3 remained absent, 1 student's data was rejected for double entry and for multiple entries; out of 96, 36% were males, 63% were female students. 55.2% of the students preferred LCD as the best mode for Anatomy Lectures and 67.7% of the students thought LCD was the most interesting & interactive mode for the anatomy lectures 95% of the students said yes to integrated modes of Audio visual aids,

out of which 61 % preferred BBT & LCD as the best of combinations of Audio visual mode; 23.5% was males and 37.5% were females, however 16% of the students expressed difficulty in switching from one mode of teaching to other within short duration. Chart 1 show percentage of the students' preference's to various lectures of anatomy and table 1 show students, both girls' and boys' preferences of different audiovisual aids for various questions asked.

CHART 1: percentage of the students' preference's to various lectures of anatomy



All figures in percentage, * P<0.0001 on chi-square test, BBT- Blackboard teaching, OHPT- Overhead projector transparencies, LCD- liquid crystal display

TABLE 2

	BBT			OHPT			LCD		
	Class	Boys	Girls	Class	Boys	Girls	Class	Boys	Girls
Ability to understand the topic better	32.3*	42.8	26.2	14.6*	14.2	14.7	53.1*	42.8	59.0
Recall tough points	42.7*	45.7	40.9	11.5*	14.2	17.4	45.8*	40.0	49.1
Understand the anatomy diagrams	26.0*	25.7	26.2	17.7*	11.4	21.3	56.3*	60.0	52.4
Stimulates further reading	20.2*	22.8	16.4	16.9*	17.4	14.7	62.9*	60.0	57.3
Most Sleep inducing	37.5*	34.5	39.3	47.9*	54.2	44.2	14.6*	11.4	16.3

All figures in percentage and *P<0.0001 on Chi-Square test, BBT- Blackboard teaching, OHPT- Overhead projector transparencies, LCD- liquid crystal display

Important comments given by the students

BBT

- Encourages quick note taking
- Understanding how to draw the diagrams
- Dislikes because of poor handwriting of the lecturer

OHPT

- Likes for the textbook like diagrams which are more easier to understand then the hand drawn and teach tough points to be explained on Blackboard as well
- Dislikes because delivery lectures are too fast

LCD

- The main reasons for liking this technique are that it provides a better quality diagrams; Power point Teaching is interesting because it can incorporate animations, pictures, graphs, 3D images, sequences of images, and videos.

- The main reasons for disliking this technique are that it needs the room to be darkened, which stimulates sleep and any power failure interrupts the lecture. Some teachers go too fast and then students find it difficult to take down the notes and diagrams.
- Points should appear line by line and each point should be of large font size so as to be clearly visible for the student seated in the back row
- Labeling of the diagrams should appear in sequencing manner in coordination with lecture
- Embryology lectures should include animations & videos

IV. Discussion

In the recent times the debate on the method of delivery of lectures, is to find out which way is effective and efficient for lectures. Didactic lectures are here to stay, because they improve the cognitive and comprehension level of the learners^{[1], [2]}. The undergraduate training program in anatomy uses a judicious mixture of didactic lectures with audio visual aids.

In Anatomy it is important at undergraduate level to get the concept right because knowledge of anatomy forms the basis for most of the higher subjects like pathology, surgery, orthopedics and neurology; one needs to understand and have a Tri-dimensional knowledge of whole human body, to get the concept of anatomy one has to think Tri-dimensional so we teachers have to teach in 3D concepts using Audio visual aids. In this study, the questionnaire was distributed to study the students' opinion on the audio visual aids used during didactic lectures in anatomy 86% of the students expressed that they were stimulated for further reading when they attended the lecture with Audio visual aids like OHPT & LCD. One of the recent studies on student perception on lecture showed 71.9% of the students voted for power point lectures in preclinical students^[3]. The students also expressed the view that in such lectures, the elucidation of the concept was absolutely clear and that they were inspired for further in-depth reading and acquiring knowledge on the concept being taught. Nourie and Shahid's findings were consistent with Butler and Mautz, that the students had a more favorable attitude toward both the presenter and the presentation when power point was used to deliver a lecture^{[4], [5]}. Our evaluation questionnaire established that a large majority of student respondents thought that the use of the power point teaching on LCD was the ideal teaching methodology for future lectures and this was one of the most encouraging findings of our study.

The percentage of Students preferring LCD as the best mode for Gross Anatomy lectures were about 61.2%, for Embryology lectures were about 66.6% and 71.9% for the Histology lectures. When asked about the reasons for their preferences they mentioned that the gross anatomy lecture were being taken using animated diagrams and gross anatomy of joints were taught using videos of animated models in motion showing not only the movements but also the exact angle of movement and range of individual movements, which enriches so as to how the joints function when in action. Embryology lectures had 3D images to understand the whole morphology of the developing embryo, some videos of different stages of development in respective systems were shown which was very informative, cross-sectional study of embryos were better understood LCD than BBT. Histology lectures were filled with animated microscopic features of the tissue and 3D images and microscopy of tissue sections at different levels. This enables the learner as, what to expect under the microscope and how to reproduce diagrams in their manuals without confusion in discrepancies between theoretical study and atlas study, hence the Power point teaching using LCD helps the students to retain the knowledge even after they have left the lectures halls. Reynolds and Baker found that presenting materials on a computer increased attention and learning Technology used simply for the sake of technology may be flashy, but it is most likely pedagogically less useful, use this technology to incorporate active learning^{[6], [7]}. The student centered learning in lectures in the classroom, was found to have technology enhanced learner's knowledge retention of the lecture which is our main goal^{[8], [9]}.

The major limitation of lectures is that the listener passively receives the material and feels bored and sleepy. In the present study the most sleep inducing mode was OHPT 47.9% voted for it, Choudhary et al, and their study also showed 51.2% of students found OHPT as most sleep inducing^[10]. There are various techniques by which lectures can be made effective. One of them is the use of audiovisual aids which should be clear and understandable. When asked about the mode students preferred the most for future lectures in anatomy 42.7% said yes to BBT; 11.4% to OHPT; and 44.8% LCD. When asked about whether different modes should be mixed with each other 95% yes and out of which 61% preferred BBT and LCD as the best integrated mode the anatomy lectures. This was also seen in other studies that students prefer BBT and LCD because comprehension of the student is clear when the topic is taught using blackboard and the concept of the subject was better understood when shown on LCD with 3D pictures or assisted animations or along the videos. In our study students preferred BBT & LCD as quick note taking was possible, interaction between student – teacher was present, good pacing was seen; whereas they disliked OHPT for the monotony, non-pacing, uninteresting, diagrams were unclear, or simply media used was unable to generate interest for longer duration of time which made them sleepy. This is concurred by one of the recent studies by Lalit Mohan et al,^[11].

In pallab's direction and strategies of teaching mentions various methods and modalities available for teaching and learning anatomy in the 21st century like web based learning living anatomy for surface anatomy, medical imaging, peer assisted learning, small groups learning, live streaming surgery for clinical anatomy. In his article he also votes LCD as on the best mode for lectures because it helps in animated based learning in lectures which was also mentioned by other researcher's like vikaseth et.al, ^{[12],[13]}.

V. Conclusion

The students' opinion about the use of audiovisual aids during didactic lectures of anatomy was favorable and encouraging. Teachers should note that the students preferred a combination of audiovisual aids of the black board and power point presentations and were interested in taking notes during lectures, and they were interested in more 3D picture and videos in Gross anatomy and Embryology lectures. We plan to implement feasible student suggestions for further improving the use of audiovisual aids during didactic lectures

Appendix I

- 1) Which mode you think is best for Anatomy Theory lectures?
 - a) BBT
 - b) OHPT
 - c) LCD
- 2) Which mode develops the ability to understand the topic better?
 - a) BBT
 - b) OHPT
 - c) LCD
- 3) Which mode is more interesting and interactive?
 - a) BBT
 - b) OHPT
 - c) LCD
- 4) Which mode is best for Gross Anatomy lectures?
 - a) BBT
 - b) OHPT
 - c) LCD
- 5) Which mode is best for Embryology Lectures in Anatomy?
 - a) BBT
 - b) OHPT
 - c) LCD
- 6) Which mode is best suited for Histology Lectures in Anatomy?
 - a) BBT
 - b) OHPT
 - c) LCD
- 7) Most sleep inducing mode of teaching?
 - a) BBT
 - b) OHPT
 - c) LCD
- 8)
 - A. Should different modes be mixed with each other?
 - a) Yes
 - b) No
 - B. Different integrated modes are
 - (a) BBT + OHPT
 - (b) BBT + LCD
 - (c) All combined
- 9) Do you find any difficulty in switching from one mode of teaching to other within short duration?
 - a) Yes
 - b) No
- 10) Best mode which helps to recall the tough points?
 - a) BBT
 - b) OHPT
 - c) LCD
- 11) Which Mode do you prefer the most for future lectures?
 - a) BBT

- b) OHPT
c) LCD
- 12) Which Mode preferred for understanding diagrams in anatomy?
a) BBT
b) OHPT
c) LCD
- 13) Which Mode stimulates further reading?
a) BBT
b) OHPT
c) LCD
- Suggestions:
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