



RESEARCH ARTICLE

ASSESSMENT OF AUDIOVISUAL AIDS IN TEACHING ANATOMY: THE STUDENTS PERSPECTIVE

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ARTICLE INFO

Article History:

Received 22nd June, 2016
Received in revised form
17th July, 2016
Accepted 26th August, 2016
Published online 30th September, 2016

Key words:

Audio-Visual Aids,
Medical education,
Over-head projector,
Power point,
Teaching aids.

ABSTRACT

Background: With advancement of technologies, medical education has been changed vastly. Audiovisual aids like overhead projections (OHP) and power point presentations (PPT) are replacing traditional teaching methods of using chalk and board (C&B) alone. Recent and vast knowledge in a limited time of lectures cannot be provided to the students by chalk and board only. So, use of different audiovisual aids can supplement our lectures for better illustrations, learning, and understanding of the topic.

Aims and Objectives: The objective of our study was to find out first year medical students preference for different teaching aids i.e., Chalk and board, Overhead projection and Power point presentation commonly used in medical teaching.

Materials and Methods: A Cross-sectional, pre-structured, pre-tested, self-administered questionnaire based study was conducted in English among first year medical students of 2015-16 batch, MNR Medical college and hospital, Sangareddy, Telangana. 100 first semester medical students including girls and boys participated in the present study. A 16 item questionnaires were used to get the opinion of students regarding different teaching aids.

Statistical analysis: Data was entered in MS excel and were analyzed. Results were shown with the help of tables and figures as bar diagram and pie charts.

Results: In present study, most preferred (63%) teaching aid was the combination of chalk and board and power point presentation. 68% students feels lectures were easy to understand and subject per lecture is covered more by combination of chalk and board and power point presentation. Chalk and board is preferred for drawing diagrams (36%) and for better problem solving (55%). Best mode to recall tough points (46%), understanding flow charts (54%) and for demonstration of clinical aspects (61%) was power point presentation. Overhead projection was the least preferred mode of teaching among students. 72% students prefer quick revision by using multiple choice questions (MCQs) and 67% feels videos or animations to be used for better understanding of the topics.

Conclusion: Present day medical students prefer combination of teaching aids rather than traditional method of chalk and board only. Chalk and board should always be supplemented with power point presentations or overhead projections for improvement of medical teaching.

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Citation: Rohini, M., Prajakta Kishve and Rao, S. V. 2016. "Assessment of audiovisual aids in teaching anatomy: The students perspective" *International Journal of Current Research*, 8, (09), 38910-38914.

INTRODUCTION

Traditional method of medical teaching is the use of only Chalk and board (C&B) as the teaching aid and delivering lecture to the students, which appears to be the most common (if not most popular) way of teaching. With advancement of technologies, medical education has been changed vastly. John Dewey stated once that if we teach today as we taught yesterday, we rob our children of the tomorrow. Information and communication technologies have increased influence over

various spheres of public life, including education, within a relatively short period of time (Shahgupta Shaikh, 2015). During lecture both visual and auditory senses are used to absorb information and here, assistance in the form of visual aids is useful (Sahu and Supe, 2000). A chalkboard is uniquely effective as a medium of classroom instructions and has been used commonly in lectures while the use of transparencies with an Overhead Projector (OHP) is also popular. Recently, the use of electronic presentations has become common and Microsoft Power Point (PPT) is now the most popular package out of all electronic presentations (Prasad et al., 2000). PPT based lectures are increasingly being delivered in medical colleges as in other colleges (James et al., 2006). In the first year MBBS, preclinical subjects taught are Anatomy, Physiology and

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Biochemistry. Each discipline follows **its** own sequence and learning outcomes are not clearly defined (Prabhu *et al.*, 2014). While delivering didactic lecture, the teacher should understand their student's learning attitude and learning style preferences. In view of this, the teacher should adapt the teaching style that fits with each student's learning style (Singh *et al.*, 2009) rather than reinforcing their own preference. Various studies have been conducted to assess the effectiveness of lectures using different audiovisual (AV) aids, there is a mixture of views based on the studies. The present study was conducted to know the perception of 1st year MBBS students on various lecture delivery methods used at MNR Medical College and Hospital, Sangareddy.

MATERIALS AND METHODS

A cross sectional pre-structured pre-coded descriptive questionnaire (Singh *et al.*, 2009) based study carried out at MNR Medical College and Hospital, Sangareddy for students of 1st year MBBS of the academic year 2015-16. Permission was taken from the Principal of the institute. Written informed consent was taken from the students. The participation to study was on voluntary basis. A 16-item questionnaire was constructed to assess opinion of students regarding AV aids, based upon a review of literature and similar studies conducted elsewhere. Study was done at the end of 1st year, after exposing them to different teaching aids. The AV aids used were Chalk and Board (C&B), Overhead projection (OHP) and Power point presentation (PPT) and combination of C&B with OHP and C&B with PPT. Hundred First year medical students, including girls and boys, participated in the study. All participants were given a briefing about objective of the study and assured confidentiality. Students were instructed to select appropriate teaching aids for each item in the questionnaire and all of them completed the questionnaire. Percentage was calculated, data was entered in MS Excel and were analyzed. Results are shown with the help of bar diagram and pie chart. The questionnaire had following 16 parameters to assess students' perception towards teaching aid:

1. Lectures easy to understand is by:
2. Aid good for understanding/ making diagrams:
3. Aid good for understanding flow charts:
4. Aid best for stressing on important points:
5. Aid best for making Notes:
6. More information is provided by which aid:
7. Better summarization of topic is by :
8. Aid which covers more subject per lecture:
9. Clinical/ applied aspects are best demonstrated by:
10. Problem solving is better with which aid:
11. Best mode to recall tough points:
12. Better interaction between teacher & Students is by:
13. Which aid appears to be least interesting:
14. Most preferred aid of teaching according to you:
15. Quick revision of the topic by using multiple choice questions (MCQs) should be preferred? (Yes/No)
16. Vides/Animations to be used for better understanding of the topic? (Yes/No)

OBSERVATIONS AND RESULTS

In our study, students opted C&B as the best aid for the following parameters (Table 1, Figure 1):

1. Good for understanding / making diagrams -36%
2. Problem solving is better - 55%

Students opted only PPT as the best aid for the following parameters:

1. Good for understanding flow charts -54%
2. Best for stressing on important points -34%
3. Best for making notes - 37%
4. More information is provided - 42%
5. Better summarization of topic -42%
6. Clinical/ applied aspects are best demonstrated – 61%
7. Best mode to recall tough points -46%

Students opted combination of C&B and PPT as the best aid for the following parameters:

1. Most preferred teaching aid – 63%
2. Better interaction between teacher & Students – 45%
3. Covers more subject per lecture – 46%
4. Lectures easy to understand – 68%
5. Stressing upon important points – 34%

Least interesting teaching aid for our students appears to be OHP alone (40%) and C&B alone (40%). Combination of C&B and OHP and PPT alone appears to be least interesting to 14% and 6% students respectively. Students prefer quick revision by using MCQs– 72%. Students who feels videos or animations to be used for better understanding of the topics - 67% (Table 1, Figure 2). Overall opinion of the male and female students regarding the best teaching aid in our study was 28 (73.7) % male and 35 (56.5) % preferred combination of C&B and PPT, 08 (21)% males and 12 (19.4)% preferred PPT Only, 02 (5.3) % male and 13 (20.9) females preferred C&B only, 02 (3.2)% females preferred C&B and OHP whereas no any male student preferred OHP & C&B, (Table 2, Figure 3,4). With the present study we can say that the medical students prefer combination of teaching aids instead of traditional didactic C&B teaching alone. Thus lectures delivered by using AV aids along with C&B was more appreciated.

DISCUSSION

Teaching is an art and by making use of best teaching aid, teacher can teach and make the student understand, remember and reproduce well which improves the academic performance of students (Priyadarshini *et al.*, 2012). Learning is the cognitive process whereby an individual acquires the professional and ethical values, the biomedical, behavioral and clinical knowledge, reasoning and psychomotor skills necessary for professional competence (Falk-Nilsson *et al.*, 2002). This can be demonstrated when learners acquire the ability to express their gained insight, realization, facts and new skills (Chadwick *et al.*, 2002). The major limitation of lectures is that the listener passively receives the material and feels bored and sleepy. Our study revealed that most medical undergraduates preferred combination of C&B and PPT (63%) in the present day medical teaching. The studies conducted by Mohan *et al.* (2010), Giri *et al.* (2013), Kumar *et al.* (2013) found similar results with 54.9%, 48.8%, 50.0% respectively,

Table 1. 1st Year MBBS Student’s preference for different Audio visual aids in Medical education to various parameters (N=100)

Parameters	C&B	OHP	PPT	C&B + OHP	C&B+PPT
1.Lectures easy to understand is by:	13	3	10	6	68
2.Aid good for understanding/ making diagrams:	36	4	20	9	31
3.Aid good for understanding flow charts:	13	3	54	2	28
4.Aid best for stressing on important points:	22	7	34	3	34
5.Aid best for making Notes:	26	4	37	4	29
6.More information is provided by which aid:	11	5	42	3	39
7.Better summarization of topic is by :	19	3	42	4	32
8.Aid which covers more subject per lecture:	10	4	37	3	46
9.Clinical/ applied aspects are best demonstrated by:	4	2	61	0	33
10.Problem solving is better with which aid:	55	3	13	2	26
11.Best mode to recall tough points:	35	0	46	1	18
12.Better interaction between teacher & Students is by:	42	2	10	1	45
13.Which aid appears to be least interesting:	40	40	6	14	0
14. Most preferred aid of teaching according to you:	15	0	20	2	63

	Yes (%) N=100	No (%) N=100
15. Quick revision of the topic by using multiple choice questions (MCQs) should be preferred?	72	28
16. Vides/Animations to be used for better understanding of the topic?	67	33

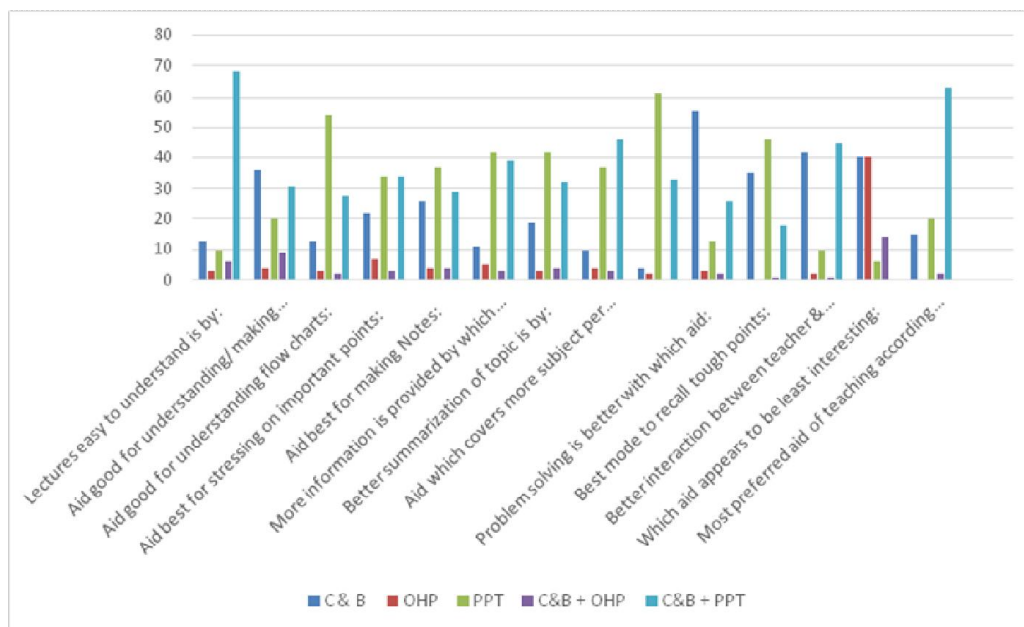


Figure 1. Percentage distribution of different AV aids in 1st Year MBBS anatomy teaching

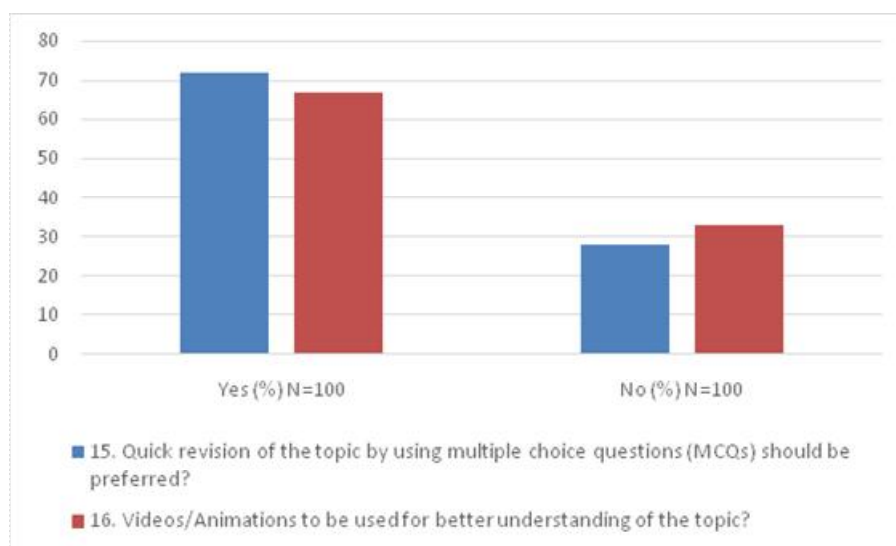
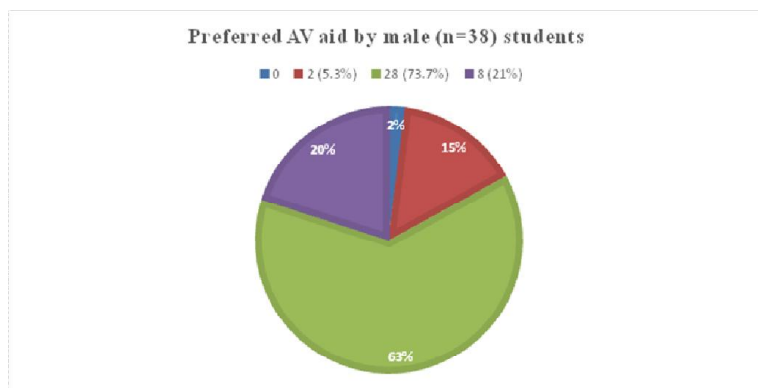
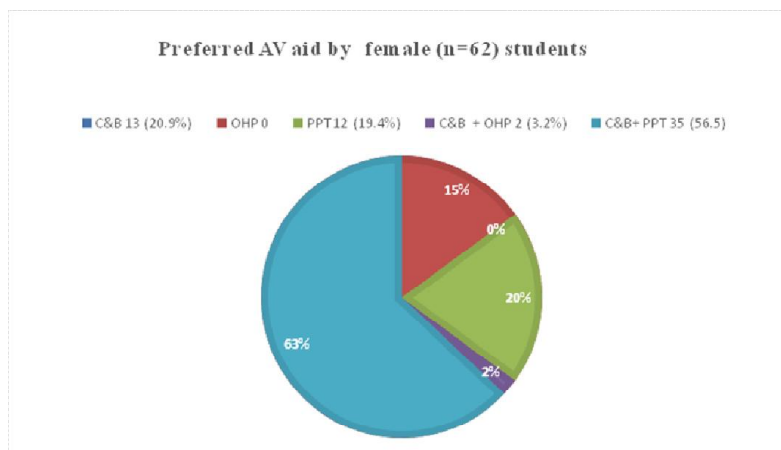


Figure 2. Percentage distribution of answers of the 1st Year MBBS students regarding use of animations/videos in medical teaching

Table 2. Most preferred teaching aid amongst males (N=38) and females in Percentage (N=62)

S. No.	Audio Visual Aids	Male (N=38) (%)	Female (N=62) (%)
1.	Chalk and Board (C&B)	02 (5.3)	13 (20.9)
2.	Over Head Projection (OHP)	0 (0)	0 (0)
3.	Power Point Projection (PPT)	08 (21)	12 (19.4)
4.	C & B + OHP	0 (0)	02 (3.2)
5.	C & B + PPT	28 (73.7)	35 (56.5)

**Figure 3. Overall preference of 1st Year MBBS male students for different AV aids****Figure 4. Overall preference of 1st Year MBBS female students for different AV aids**

to the present study. Majority of the students feels AV-aids are essential for lecture delivery and suggested change of AV-aids according to topic (Chavan *et al.*, 2014). Vikas Seth *et al* in their study have mentioned that, 65.3% students preferred PPT while 15.16% C&B and 19.51% TOHP (Vikas Seth *et al.*, 2010). Equal preference to C&B and PPT was noted in the studies of Baxi *et al* study, 21.8% preferred a combination of teaching aids (Baxi *et al.*, 2009) whereas in studies done by Bennal *et al.*, combination scored 54.9% respectively (Amruta Bennal *et al.*, 2014). Review of literature suggest that, the understanding of topics is best possible with a combination of audio visual aids (Mohan *et al.*, 2010; Kumar *et al.*, 2013). Further most students in our study preferred combination of C&B and PPT for better interaction between teacher & students (45%), stressing upon important points (34%), lectures easy to understand (68%) and covers more subject per lecture (46%). C&B is the most preferred aid in our study for understanding or copying diagrams which is similar with the study done by Hemalatha (2014) whereas Mohan *et al.* (2010) observed that

PPT was the best method accepted by the students for better perception of diagrams whereas OHP was preferred in study by Saha Nirmalya (2015). PPT in our study is preferred for understanding flowcharts (54%), for providing more information (42%), better summarization of the topic (42%), clinical/ applied aspects are best demonstrated (61%), for recalling tough points (46%). In these parameters our study is comparable to study by Hemalatha (2014). Students prefer use of MCQs and animations for better understanding of topics in our study. OHP was the least preferred teaching aid for all parameters in our study. While using an OHP, it is easy to put much information on one page/slide. When a large volume of information is presented in this manner, the working memory capacity can become over, useful note taking becomes difficult. This could be one of the reasons as to why the students did not prefer the use of an OHP during lectures (Shahgupta Shaikh, 2015). The issue of gender in medical education and practice gains new momentum with the rapid increase in the enrolment of women in medical schools and gender could influence

academic performance and research activity (Hojat *et al.*, 2002). Differences were seen in the attitude towards listening and understanding a particular topic. Overall opinion of the male and female students regarding the best teaching aid in our study was 28 (73.7) % male and 35 (56.5) % preferred combination of C&B and PPT.

Conclusion

The medical undergraduates in present study preferred a combination method of teaching aids which included chalk-board and power point presentations incorporating animations. Traditional didactic lectures by chalk-board should be modified by the use of technological advancements to make our lectures more informative and effective. To make power points more students friendly they should have less text, more of pictures and animations which help students to recollect during their exams. As per the students perspective a combination of teaching methods is required and not the replacement of chalkboard.

Acknowledgement

We are very much thankful to the first year medical students of 2015-2016 batch for their participation in this study to make it a valuable for future improvement of using of Audio-visual Aids during lecture classes. We are thankful to the principal of the institute for their continuous encouragement and guidance.

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