

Benefits of audio-visual aids lectures



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Students' perception on role of audio-visual aids used in didactic lectures

Abstract:

Background & objectives: Medical teachers have conventionally been using different teaching methods to educate medical students. Nowadays audiovisual aids such as power point slides, animation videos are being used. The optimum use of audiovisual aids is essential for deriving their benefits. This study was done to know the students' preferences regarding the various audiovisual aids, with an aim to improve their use in didactic lectures for better understanding of concepts in medical science.

Methods: Cross sectional & observational study was undertaken in 113 undergraduate medical students . A set of questionnaire was distributed and students were directed to choose the most appropriate option as per the Likert scale. The responses were analyzed using SPSS 17. 0.

Results: Out of 113 students, 45. 1% preferred use of combination of audiovisual aids during a didactic lecture. 27. 4% preferred animation videos, 15. 9% preferred PowerPoint slides & 11. 5% preferred use of blackboard.

Conclusion: Our study demonstrates that use of combination of audio-visual aids is the most preferred mode of teaching by the students. For better understanding of a subject and improvement of student's performance, a teacher should match the lectures with preferred audiovisual aids and use them prudently. The subjects wanted animations to be incorporated frequently into medical education.

Key Words: Animations, Audiovisual aids(AV), Blackboard, didactic lectures, Medical students, Powerpoint slides

Introduction: Today we are living in the era of Information and communication technology. The power of technology has captured the minds of new generation and this influence could be seen in the field of medical education too. The technology for teaching students in this competitive scenario is the use of Audio-Visual aids in the form of power point presentations, animation videos, movies etc or can be the combination of both ¹ .

Lectures are the most traditional, old fashioned and didactic method of teaching which are meant for one way delivery of information and are especially useful when a large number of learners must be taught at one time. Well organized lecture remains one of the most effective ways to integrate and organize information from multiple sources on complex topics ² . Lectures are often supported by audio-visual aids by emphasizing key points on the black board, the projection of written or printed matter on transparencies via an overhead projector(OHP) or increasingly nowadays via a computer based system, notably Microsoft power point(PP) & animation videos ³ .

The traditional chalk-talk methodology provides strong student-teacher interaction, but its effectiveness declines as the number of students in the class increases. Furthermore, maintenance of discipline and drawing

attention gets hampered ⁴. OHPs lack the ability to display moving images, have poor visibility and optical focus. Microsoft PP slides, accompanied with multimedia projectors, have remarkably revolutionized teaching. Texts as well as audiovisual clips can be easily played on PP slides. Animations refer to 3D video clips that can be played on a multimedia projector (MP). They provide a visual simulation that is particularly handy in sustaining interest and understanding complex medical concepts ⁵.

Students favour teaching methods employing audiovisual aids over traditional lectures using blackboard ³. However, the optimum use of audiovisual aids is essential for deriving their benefits ⁶. There is no conclusive study stating the superiority of one method over the other. Garg A et al. have observed that students want the teachers to include audiovisual aids during the lectures, but it is not certain whether it improves their understanding or performance in the examinations ⁷. Baxi SN et al. have observed that there was marked improvement in examination results when PPT replaced the use of OHP ⁸.

So there is a mixture of views based on the recent studies and it is not clear whether the use of a particular lecture delivery method is superior to others. Therefore, this study was undertaken to get the feedback from the medical students regarding their preferences in using newer modalities of teaching methods like animation videos, PowerPoint slides, and pre-recorded lectures along with blackboard teaching with available resources and progressively improve lecture delivery for their better understanding.

Material & methods: The cross-sectional, observational study was conducted with prior permission from the authorities and approval from ethical committee. A self administered questionnaire based on previous study^{4, 6, 16} was distributed to 130 students of 2nd & 3rd year MBBS aged 18-22 years selected by random convenient sampling after obtaining their informed consent. The questionnaire was asked to complete anonymously.

Participation was voluntary and dependent on subjects willingness. The participants were asked not to reveal their names, registration number or any personal information so they can answer freely without any influence. Responses were taken from the students present in the class on the day of survey. Those who were absent or refused to participate were excluded from the study. 113 students out of 130 who returned the filled questionnaire became the participants in the current study.

The questionnaire consists of twenty questions designed in two parts, first part composed of information regarding schooling, HSC board & HSC percentage of the participants. Second part contained questions related to the preferences and opinions for use of AV aids in lecture delivery, in which twelve attributes were measured, based on Likert's scale of grading as strongly agree/Agree/ No opinion/ Disagree/ strongly disagree. The scores allotted in the aforementioned sequence are 5/4/3/2/1. The participants were encouraged to furnish their independent and unbiased opinion without revealing their identity in the questionnaire.

The sum of the all students grading on each attribute was taken for calculating the final weighted score. The response was analyzed using SPSS

17. 0 for data entry and statistical significance was found by using Friedman ANOVA test.

Results: Association between attributes and preference of AV-aids is depicted in (TABLE- 1). To analyze the best method of audio visual aid in use for independent attributes, ranking scale was adopted allotting the sequence in ascending order. It is evident that mean ranking for blackboard , PPT & prerecorded lectures were lower than that of animation videos for most of the attributes. On application of “ Friedman test” a significant association was found ($p < 0.001$), which conclude that there is significant difference in preference of students in different teaching modalities. The animation videos was the most preferred A-V aids by participants for majority of attributes while blackboard was preferred for taking notes & diagrams. As depicted in Table-2, majority of the student has preferred use of combination of audio-visual aids(45. 1%). Majority of Female students preferred use of combination of aids while majority of male students preferred animation videos, but this difference was not statistically significant.

Table 1: Association between attributes and preference of AV-aids

Attribut es	Black boar d	PP slid es	Anim ation vide os	Prere corde d lectur es	Comb inatio n	Stat.
						Sig (Fried man' s test)

	Mean	SD	Media n	Mea n	SD	Media n	Mean	Media n	Mea n	SD	Media n	Mean	Media n	Mea n	SD	Media n	P
Lectures were well organized	2.99	0.96	4.00	3.23	0.798	4.00	3.65	5.00	3.03	0.700	3.89	3.93	5.00	3.12	0.700	3.00	0.001
Content was informative	2.87	0.99	4.00	3.38	0.793	4.00	3.56	4.00	3.03	0.700	3.90	3.74	4.00	3.66	0.700	3.00	0.001
Lectures clear & understandable	3.43	0.86	4.00	3.11	0.833	4.00	3.65	4.00	3.05	0.909	3.93	3.61	4.00	3.90	0.902	3.00	0.001
Clarity was	2.83	0.93	4.00	3.51	0.958	4.00	3.87	4.00	3.21	0.909	3.93	3.87	4.00	3.21	0.909	3.00	0.001

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Explanation/summary		P	
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Table 2: Preferred

aid

	Preferred aid	Total	blackboard	Combination	Ppt slides
Animations					
Gender	Female	Count	14	7	35
			11	67	
% within gender	20.9%	10.4%	52.2%	16.	100.

				4%	0%	
% within Preferred aid	45.2%	53.8%	68.6%	61.1%	59.3%	
Male	Count	17	6	16	7	46
% within gender	37.0%	13.0%	34.8%	15.2%	100.0%	
% within Preferred aid	54.8%	46.2%	31.4%	38.9%	40.7%	
Total	Count	31	13	51	18	113
%	27.4%	11.5%	45.1%	15.9%	100.0%	

Discussion: The current study was conducted to get feedback from the medical students regarding their opinion on audiovisual aids used during didactic lectures using a Questionnaire. It is an obvious observation that gradually the use of electronic media has become more common in medical colleges over conservative teaching methods that utilized blackboards⁹. For centuries, a blackboard remained the mediator for displaying information in a persistent manner, and can give the audience a consistent view of far more information than can be held in short-term memory. Anderson R noted that blackboards encourage note-taking and student-teacher interaction¹⁰

which was also found in our study. Seth V et al. noted that by using blackboard taking down the simply-drawn diagrams is easy, the teacher makes natural pauses and power breaks do not interfere with the lecture ⁴. Its limitation is that information-rich contents like complex tables, graphs and vivid images cannot be displayed and the organization of the presentation is poorer as compared to electronic slides ⁵. He also noted that the majority of medical students preferred PPT presentations, while dental students preferred chalkboard. Baxi SN et al. ⁸ observed that an equal number of students preferred blackboard-based or multimedia-based lectures and insisted to consider the need of using multimedia modalities to present lectures to students ¹¹.

In our study it was revealed that the students preferred animation videos over Powerpoint presentations or blackboard. Majority of the students opined for the use of combination of audiovisual aids in didactic lectures for better understanding of concepts in medical science which correlates with the study done by Kaushik Bhowmick et al ¹². The training program in UG teaching uses a judicious mixture of didactic lectures with audiovisual aids and problem based learning methods, clinical teaching and practical experiments ⁶. Optimum use of audiovisual aid is essential for deriving their benefits ⁶. Audio visual aids can be effectively used to show the photographs and the animated pictures related to the topics ¹³. Animations, with their unique three-dimensional presentation, have been accredited with simultaneously being able to increase interest and motivation, to draw attention, to illustrate procedures and to explain how things work ¹⁴.

Conclusion: Our study demonstrated that lecture delivered by using a combination of audio visual aids was most appreciated by the students. To understand complex concepts and to retain facts, the participants desired animations to be incorporated frequently into medical education as they are interesting & it breaks the monotony of lecture. It motivates students to attend lectures as they are very curious to see or hear what the teacher is going to show them in the upcoming class, by seeing animated effects, colorful presentation and hearing recording they are able to concentrate more ¹.

References:

1. Arora A. Impact of Audiovisual aids on students at university level. *Altius Shodh Journal of Management & commerce*. 2013; ISSN 2348-8891.
2. Richardson D. Don't dump the didactic lecture; fix it. *Adv Physiol Educ*. 2008; 32(1): 23-24.
3. Bennal A, Itagi V, Taklikar RH. Role of Audiovisual aids in physiology lecture. *National Journal of Physiology, Pharmacy & Pharmacology*. 2014; 4(2): 109-111.
4. Seth V, Upadhyaya P, Ahmad M, Moghe V. PowerPoint or chalk and talk: perceptions of medical students versus dental students in a medical college in India. *Adv Med Educ Pract* 2010;(1): 11-16.
5. Naqvi SH, Mobasher F, Afzal MA, Muhammad U, Naeem A. Effectiveness of teaching methods in a medical institute: perceptions of medical students to teaching aids. *JPMA*. 2013; 63: 859.

6. Mohan L, Sankar P R, Kamath A, Manish M S, Eesha B R. Students' attitudes towards the use of audio-visual aids during didactic lecture in pharmacology. *Journal of Clinical and Diagnostic Research* 2010; (4): 3363-3368.
7. Garg A, Rataboli PV, Muchandi K. Students' opinion on the prevailing teaching methods in pharmacology and changes recommended. *Indian J Pharmacol* 2004; (36): 155-8.
8. Baxi SN, Shah CJ, Parmar RD, Parmar D, Tripathi CB. Students' perception of different teaching aids in a medical college. *African Journal of Health Professions Education*. 2009; 1(1): 15-16.
9. Seth V, Upadhyaya P, Ahmad M, Kumar V. Impact of various lecture delivery methods in pharmacology. *Excli journal* 2010;(9): 96-101.
10. Anderson R. Beyond PowerPoint: building a new classroom presenter. *Syllabus* 2004; (17): 31-3.
11. Lowry RB. Electronic presentation of lectures – effect upon student performance. *University Chemistry Education*. 1999; (8): 18-21.
12. Bhowmick K, Mukopadhyay M, Chakraborty S. Assessment of perception of first professional MBBS students in India about a teaching learning activity in Biochemistry. *South East Asian Journal of Medical Education* 2009;(3): 8.
13. Metcalfe DH, Mathura M. Students perception of good and bad teaching: a report of a critical incident study. *Medical Education*. 1995; 29(3): 193-197.
14. Lowe R, Schnotz W (eds.). *Learning with animation: research implications for design*. UK: Cambridge University Press. 2008.

15. Chavan SK, Chavan KD, Giri PA, Jogdand SS. Perceptions of Medical Students Regarding Use of Audio-visual Aids in Lecture Delivery. IOSR Journal of Research & Method in Education . 2014;(4): 28-32.
16. Kumar A, Singh R, Mohan L, Kumar M. Student's views on audiovisual aids used during didactic lectures in a medical college. Asian Journal of Medical Science 2013;(4): 36-40.