



POWERPOINT VERSUS TRANSPARENCIES AND OVERHEAD PROJECTOR: MEDICAL STUDENTS PERCEPTIONS IN A MEDICAL COLLEGE OF INDIA

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ABSTRACT

Purpose: To assess the medical student's perception about teaching with the use of PowerPoint presentations [PPT] and with the use of transparencies and overhead projector [TOHP]. The study analyses the knowledge gained by the students when lecture was delivered by these two methods.

Methods: Two groups of second year MBBS students were asked to analyze a lecture delivered by PPT and TOHP, on a structured and validated questionnaire on a five-point Likert Scale. The knowledge gained on the topic by the study group was also assessed based on the answers given to Multiple Choice Questions [MCQs] asked on the lecture topic taught by these two methods. The total score of the students were then analyzed.

Results: The study revealed that overall students favored PPT presentations over OHP method for lecture delivering though this perception was not statistically significant at 5% level [$P > 0.05$], the PPT method for delivering lecture was found to be better than OHP method. The analysis of presentation attribute of the lecture revealed that 82.4% students favored PPT method of teaching over TOHP method [68%]. Overall, 98% students favored PPT method against 82% students favoring TOHP method. There was significant difference in the marks obtained when the lecture was delivered by PPT method in comparison with TOHP method [$P < 0.01$].

Conclusion: The medical students participating in this research preferred the use of PPT over OHP presentation as favorite lecture delivery method. Students scored better marks with PPT presentation as compared to TOHP.

KEYWORDS : Medical education, Lecture delivery, PowerPoint, Transparencies, OHP

INTRODUCTION

Recent years has seen revolutionary changes with adoption of new methods of teaching including computer assisted learning, role plays and use of audio-visual aids. Medical education technology utilizes different teaching methodologies for delivering lecture content, an engaging area of educational research. With the advent of technology, use of electronic media has become common in medical colleges, as in other colleges and institutions. Currently, the most common ways of lecture delivery include using PowerPoint (PPT) presentations, lecturing by using transparency and overhead projector (TOHP) and the traditional 'chalk and talk' method.

PowerPoint is a presentation computer program that is widely used in schools and businesses. It consists of a series of "slides," which are individual pages that the presenter designs. The design of the slides has a big impact on their effectiveness. The software was designed as a convenient way to display graphical information that would support the speaker and supplement the presentation.

PowerPoint presentations are routinely used in medical meetings and conferences by the speaker or lecturer to assemble professional looking slides to deliver the concept. Over use of PPT, sadly results in unending streams of slides with bullet lists, animations that obscure rather than clarify the point and cartoons that distract rather than convey the message. It is often argued that PowerPoint corrupts the communication process by focusing on format rather than on context, sometimes with serious consequences.¹ One study has revealed that in PPT presentations the basic principles of multimedia learning and instructional design are frequently ignored.² Various authors have argued that PPT encourages active learning environment, increase effectiveness of lectures and lend clarity to the subject³⁻⁵ and the use of PowerPoint can help teachers to "help their students learn"⁶.

It is not effective simply to repeat the same words that are written on a text slides – a common mistake with PPT presentations. Also, the practice of circulating PowerPoint slides as handouts summarizing a presentation emphasizes the overreliance on the visual element and should be discouraged. The fault almost invariably lies not with PowerPoint but with the presenter. It is not PowerPoint that does a poor job it is the lecturer or speaker.⁷ In a useful book on the topic, 'Killer Presentations', the author argues that the problem with PPT lies in how it is used. Transform its use and you will transform its effect.⁸ It is revealed that both the visual and auditory senses are used to absorb information and here assistance in the form of a visual aid is useful.⁹ A chalkboard is uniquely effective as a medium of classroom instruction and has been used commonly in lectures, while the use of transparencies with an overhead projector [TOHP] is also popular.¹⁰ Recently, PPT based lectures are increasingly being delivered in medical college as in other colleges and universities.¹¹ However,

educationists are divided on the superiority of PPT with respect to the traditional chalk and talk method.¹²

Presently, the most common way for lecture delivery prevalent across all medical schools include the traditional "Chalk and Talk Method", lectures by using transparencies and overhead projector and using power-point presentations. Many studies have been conducted comparing these methods and It is unclear as to which method is best for lecture delivery. In view of the contradictory statements produced by various researchers, this study was undertaken to assess the student's perception about use of PPT presentations in delivering lectures compared with the transparencies and OHP [TOHP] method.

AIMS AND OBJECTIVES-

1. To assess the student's perception about teaching with the use of power-point presentations [PPT] and with the use of transparencies and overhead projector [TOHP]
2. To observe and assess the knowledge gained by the students by these two lecture delivery methods.

MATERIALS AND METHODS

The study was conducted in the Department of Forensic Medicine and Toxicology at D Y Patil University, School of Medicine Hospital and Research Centre, Nerul, Navi Mumbai. The study project involved a planned didactic lecture for II MBBS students on the topic of Forensic Toxicology from the syllabus of the subject. A didactic lecture on Snake envenomation of one-hour duration was delivered by the same faculty to the two batches of II-year MBBS students. The II MBBS UG students were divided into two groups by randomization technique [Group A and Group B each containing 50 students]. Group A students were taught with power-point presentation while the other group was taught by using TOHP method. The power-point presentation slides (PPT) were prepared as per the recommended guidelines of effective use of AV aids in teaching and learning.

At the end of the lecture, a structured and validated questionnaire was administered to the students to determine their perception about the preferred method of teaching. The students were asked to choose the preferred method of teaching for each of the given attributes [Content, Structure, Presentation and Overall] on a five-point Likert scale; Strongly agree, agree, no opinion, disagree or strongly disagree.

To assess the knowledge gained on the topic, the students were asked 5 MCQs on the lecture topic at the end of the lecture. These MCQs were prepared and validated by senior faculty members of the department. Same set of MCQs was given to each group. Each MCQ had a proper stem and 4 options with single best answer. Every correct MCQ was awarded 1 mark with no negative marks for incorrect answer and then the total score of the students were analyzed. Approval of Institutional Ethics Committee was taken before initiating the study.

Data collection and analysis

The filled questionnaires were collected and verified. The data collected was entered on Microsoft excel sheet and was analyzed by using SPSS software version 21 developed by Microsoft. Wilcoxon sum rank test [Z value] was applied to assess the preferred method of teaching. A P value of less than 0.05 [P < 0.05] was considered to be statistically significant. Wilcoxon sum rank test [Z value] was used to analyze the MCQ score of the students and P-value of less than 0.01 [P < 0.01] was considered to be statistically significant.

OBSERVATIONS AND RESULTS

Table 1 reveals the perception of students regarding PPT and OHP method of lecture delivery. The result reveals that overall students favored PPT presentations over OHP method for lecture delivering [Table 1]. Though the perception was not statistically significant at 5% level [P > 0.05], the PPT method for delivering lecture was found to be better than OHP method.

Table 1 Perception of students regarding PPT and TOHP

Statement regarding Perception	Strongly Agree		Agree		Neutral		Disagree		Strongly Disagree	
	PPT	TOHP	PPT	TOHP	PPT	TOHP	PPT	TOHP	PPT	TOHP
Content										
1.1 - The content was at an appropriate level	38	22	12	28	0	0	0	0	0	0
1.2 - The content was relevant to my training	32	24	16	23	2	3	0	0	0	0
Structure										
2.1 - There was clear introduction to the subject	41	23	8	22	0	5	1	0	0	0
2.2 - The aims and objectives were clearly stated	37	32	12	16	1	2	0	0	0	0
2.3 - The material was well organized	31	21	18	17	1	12	0	0	0	0
2.4 - There was clear summary and conclusion	24	26	21	20	4	3	1	1	0	0
Presentation										
3.1 - The presenter appeared well informed about the subject	42	34	8	15	0	1	0	0	0	0
3.2 - Appropriate medium was selected for the presentation	30	9	15	11	4	10	1	16	0	4
3.3 - The presenter appeared enthusiastic about the subject	28	19	19	21	3	8	0	2	0	0
3.4 - Audience participation and interaction was encouraged	16	6	21	25	9	13	4	6	1	0
3.5 - The lecture advanced my understanding	16	20	29	21	3	7	1	2	1	0
3.6 - There was effective use of audiovisuals aids	23	7	8	16	15	19	2	5	2	3
3.7 - I was able to take my notes and diagrams	8	4	19	18	15	22	4	4	4	2
3.8 - The presentation was given at the right pace	25	15	19	26	6	6	0	3	0	0
3.9 - The presentation was of a reasonable length	26	21	19	18	5	10	0	1	0	0
Overall										
4.1 - Overall this teaching session was of high quality	24	12	25	29	0	7	1	2	0	0

Abbreviation: PPT - PowerPoint Presentations, TOHP – Transparencies and overhead projector

Figure 1 depicts the percentage wise distribution of perception of students regarding PPT and OHP method in favorable opinion. In the content attribute, 98% students preferred PPT where as 97% students favored OHP. Similarly, from the structure point of view, 96% students favored PPT whereas 88.5% students favored OHP. The analysis of presentation attribute of the lecture revealed that 82.4% students favored PPT method of teaching over OHP method [68%]. But overall, 98% students favored PPT method against 82% students favoring OHP method.

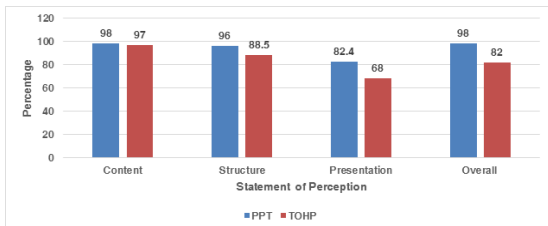


Figure 1 Perception of Students regarding PPT and TOHP in favorable opinion

Abbreviation: PPT - PowerPoint Presentations, TOHP – Transparencies and overhead projector

The MCQ test marks were analyzed and compared [Figure 2]. The median score of Group A and Group B participants was 3.64 and 3.18 respectively. There is significant difference in the marks obtained when the lecture was delivered by PPT method in comparison with OHP method [P < 0.01].

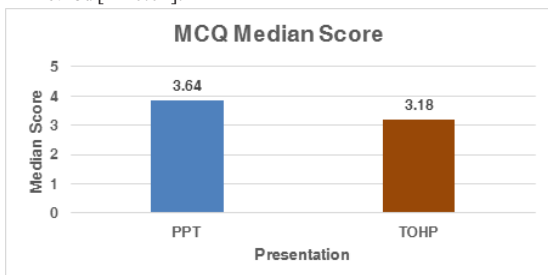


Figure 2 MCQ Test Score of Students

Abbreviation: PPT - PowerPoint Presentations, TOHP – Transparencies and overhead projector

DISCUSSION

Teaching-learning is a continuous and complex process which occurs simultaneously. Establishment of good communication channel is essential in teaching for transformation of knowledge and information. It has 5 basic components namely source [presenter/teacher], receiver or learner [audience/students], message [content/lecture], channels [medium which can be traditional or electronic], and feedback [effect]. The learners need should be considered while delivering a lecture.

Didactic lectures suffer from inherent limitation as it is a passive form of learning where learners are less motivated, feel bored and sleepy. Lectures can be made more effective with the use of appropriate communication channels [traditional or electronic] which will appeal and stimulate the learner by creating conducive and supportive learning environment.

The present study revealed that the medical students gave favorable opinion to lecture delivery by power-point presentation over TOHP method. The lecture delivery was better and was of high quality by using power-point slides than using transparencies. This finding is in correlation with other studies, where majority medical students and postgraduate students preferred the use of PPT presentation as the mode of lecture delivery to the other modes.¹³⁻¹⁵

Considering the various attributes of a lecture, the present study revealed that students preferred lecture delivery by power-point presentation as the content was clearer and more relevant, the material being well organized, more audience engagement and interaction was encouraged. One of the important features of Power-Point is that it provides structure to a presentation which aids in the order and pacing of the lecture.¹⁶ In addition to that, lectures with PPT assures more efficient time management than writing on the board or using transparencies.¹⁷ Also, highlighting an important point or stressing on it, displaying images/photographs from real cases makes power-point presentation more suitable for teaching a large audience.

The MCQ test score were higher in the students who attended lecture with power-point as compared to transparencies and overhead projector. Better understanding of the topic results in gain in knowledge which is reflected in better score. This is in consistent with

the study which showed significant cognitive gain after a traditional lecture with power-point slides.¹⁸ Similar study done in different settings where students who participated in lectures supported by PPT had higher grades compared to Chalk and Board method.^{13,19} However, in contrary to the above findings, another study did not show any statistical significant in post test scores of PPT class and CB class suggesting that the two methods are equally effective in helping students learn.²⁰

CONCLUSION

The present study analyzed the preferred teaching methodology amongst medical students. The medical students preferred the use of PPT over OHP presentation as favorite lecture delivery method as it offered more content clarity with greater audience engagement and better understanding of the topic. In spite of the above conclusion, it is wise to say that the choice of lecture delivery method primarily depends on the teacher, subject and the course curriculum. Every teaching methodology has its own advantages and disadvantages and technology will only aid, but it will never replace a carefully planned out lecture.

Limitations of the Study

The findings of the study were based on only one lecture, which may be a limitation factor affecting the results. Also, the topic selected, and the presentation style of the presenter may affect the perception of the students toward the lecture delivery method.

Conflict of Interest

None.

Institute Ethics Committee Approval

Yes

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