

The Effectiveness of Lectures in Forensic Medicine using chalkboard and Power Point Presentation- A comparative study

Renju Raveendran^a, Sajithkumar R^b, Lillykutty Pothen^b, Lijo Mathew^b

a. Department of Forensic Medicine, Government Medical College, Thiruvananthapuram;

b. Department of Medicine, MCI Nodal centre for Faculty Development, Government Medical College, Kottayam*

ABSTRACT

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Power point presentation and chalkboard are widely employed media for different methods of teaching including lectures. Various studies have shown clear cut advantages and disadvantages for either of these. Against this background an experimental study was carried out in Government Medical College, Idukki to test the hypothesis whether traditional media of teaching like chalkboard is more effective than power point presentation for conducting lectures in Forensic Medicine. 50 students of the first year MBBS batch were randomly selected and divided into two groups of 25 each. The same selected topic in Forensic Medicine was taught through a lecture using chalkboard to the first group and power point presentation to the second. An objective test paper and questionnaire were administered to either group after each lecture session to evaluate the marks scored and record the subjective responses respectively. Results were statistically analyzed and compared. Based on the analysis of response to subjective indicators in the questionnaire, it was found that lecture using chalkboard was unequivocally and definitely more appealing to students. However when marks obtained for the test papers were compared between the two groups, the difference was found to be statistically insignificant. In other words there seemed to be no statistically significant difference at an objective level

Keywords: Power point, Chalkboard, Lecture, Media of teaching between the two media of taking lectures in the subject of Forensic Medicine

*See End Note for complete author details

OBJECTIVE

To compare the effectiveness of lecture using chalkboard and power point presentation as a teaching learning medium in the subject of Forensic medicine.

BACKGROUND OF THE STUDY

Lectures have been and continue to be a time tested teaching learning method to impart knowledge and skills to a larger group of students despite its disadvantages including being too teacher centric and lacking in student interaction and participation. Notwithstanding its criticisms, lectures if conducted in an effective way assisted by appropriate teaching-learning media, can certainly go a long way in not only providing quality education in the medical field but also as a means of improvement and personality development for the teacher. Over the years a number of teaching media have been conventionally used to

assist the lecturer in medical education. Two most important and promising media that have made a huge impact in the field of education is by and large the chalkboard and Power point presentation.

Power point presentation being a newer electronically devised method for presentation of material in the computer age has of lately made deep in-roads into the domain of medical teaching. Chalkboard being around for a phenomenally longer time has stood the test of time as a resourceful and dependable companion to any teacher who wishes to put it to best use. There still rages an ongoing debate as to whether it's the traditional media like chalkboard or modern ones like power point presentation that hold pride of place in the world of the lectures. This study is therefore an attempt to systematically look into this very aspect (in this case in the subject of Forensic Medicine) from a purely scientific point of view by testing the hypothesis "Traditional media of teaching

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Corresponding Author:

Dr Renju Raveendran, Associate Professor, Department of Forensic Medicine, Government Medical College, Thiruvananthapuram. Mobile: 9846808533. Email: renjuraven.raveendran@gmail.com.

like chalkboard is more effective than newer electronic media like Power Point Presentation for conducting lectures in Forensic Medicine.”

INTRODUCTION

During a lecture both the visual and auditory senses are used to absorb information and hence assistance in the form of a visual aid is useful.¹ A chalkboard is uniquely effective as a medium of classroom instruction and has been used commonly in lecture.² Recently the use of electronic presentation has become common and Microsoft Power Point is now the most popular package used out of all the electronic presentations.³ Educationists are divided on the superiority of PPT (power point presentations) with respect to the traditional chalk and talk method.⁴

Many studies have been conducted to assess the effectiveness of lectures using PPT in comparison to lectures using chalkboard. According to one study the traditional classes with chalkboard presentation were most favoured by students from medicine and biomedicine courses.⁵ Another study observed that most students preferred PPT over traditional chalk and talk presentations.⁶ One study noted that students preferred PPT over the use of traditional methods but in some instances the content of PPT distracted students.⁷ Students have found PPT more interesting because of the novelty factor. In a study on the comparison of lecture delivery methods amongst medical students versus dental students, medical students preferred the use of PPT (65.33%) while dental students preferred the chalk and talk method (41.84%). Chalk board was not much appreciated by medical students (15.16%). The most probable reason for the noted difference of opinion might be that when the medical teachers are teaching dental students, they don't reduce their PPT presentation material as per the specific needs of the dental students. The dental students did not prefer PPT mainly because the PPT contained too much material and the lectures were delivered too fast. The main reason for liking the chalkboard are that the student-teacher interaction is better, it encourages taking down notes and diagrams, as the student follows the hand of the teacher. Main reason for disliking this technique is that poor handwriting is not legible and sometimes the blackboard is dirty. At times the chalk is faulty and it soils the clothes. Main reasons for disliking PPT presentations are that it needs the room to be darkened and takes longer to set up the projection and any power failure interrupts the lecture.⁸

One extensive study has suggested that efficacy of PPT is case specific rather than universal.⁹ It is suggested

that although PPT has some positive effects it does reduce the interactive discussion between the teacher and students.¹⁰ One disadvantage of PPT seems to be that the student becomes a passive observer rather than an active participant.¹¹ There is the potential of PPT to oversimplify material. What students need to know is reduced to a bulleted list of five items described in five words or less. Do they hint at the complex relationships that exist between and amongst items on that list? Do they promote critical thinking?¹²

Power point presentation is a program which can make a lecture very interesting or can cause distraction.¹³ PPT provides a better quality of text and diagrams and is more interesting because it can incorporate animations, pictures, graphs and 3D images.⁸

A chalkboard may be said to be more student centred while PPT is more teacher centred. A good teacher knows to start at a basic point of the course which students can understand and then lead them gradually through new and more difficult points.¹⁴ In our interview we noted students' opinion that the main reason for liking lectures using chalkboard was that these contained natural pauses and breaks, allowing students to follow the material and take down notes. A chalkboard allows spontaneity and flexibility and can be used with lights on. The chalkboard is dynamic, sensitive, changeable, immediate and completely in the classroom moment. There is ritual collective focus and activity. The instructor has to be much more physically present because writing on the chalkboard requires choreography, gestures and tempo. Using a chalkboard frees the teacher to be more responsive to the needs of the student.¹⁵ A skilled lecturer can take students on a journey of discovery, exposing students to one interesting fact after another. It requires the lecturer to have stronger organization skills to deliver a tight and focused lecture. Many lecturers tend to create power point slides that are more suitable for reading than presentation. Students can find overcrowded power point slides overwhelming and then can take their attention away from the lecturer's explanation.¹⁶ Explanation is the main role of the teacher and it is much easier to explain something starting with the blank but diagrammatically flexible chalkboard than with the restricted arena of a power point presentation.¹⁶ In the hands of a trained teacher any teaching aid would be appropriate and effective.

MATERIALS AND METHODS

Fifty students of the same batch of MBBS degree course from Government Medical College, Idukki

were randomly selected and divided into two groups of twenty five each. The same selected topic in Forensic Medicine was taught to both batches through lectures using chalkboard for the first group and power point presentation for the second group.

At the end of each session, a questionnaire to evaluate the immediate subjective response and an objective test paper comprising of short answer type questions were given to the students. The results obtained were further statistically analyzed and compared between the two groups.

The study was of experimental type and the duration of the study was for six months.

Ethical considerations, if any were taken care of by lecturing the same topic to both groups using both the teaching methods under consideration.

ANOVA was the statistical tool employed to make a statistical comparison of data obtained from the two groups under study.

INCLUSION AND EXCLUSION CRITERIA

Inclusion criteria: All students who are ready and willing to participate in the project.

Exclusion criteria:

1. Anyone not interested and unwilling to participate due to any other reason.
2. Students who are absent on the day of the lectures due to some valid reason.

OBSERVATIONS AND RESULTS OF THE STUDY

To identify and compare the effectiveness of two media of teaching- learning, a sample of fifty students from the same batch of MBBS degree course were randomly selected and divided into two groups of twenty five each and the same topic in Forensic Medicine was taught employing the teaching – learning method of lecture using chalkboard for the first group and power point presentation for the second group.

Response Indicators	Agree	Strongly Agree	Disagree
Was the class interesting	42.0%	58.0%	0.0%
Have you clearly understood the concepts taught	46.0%	52.0%	2.0%
Future applicability of concepts taught.	18.0%	82.0%	0.0%

At the end of each session an objective test as well as questionnaire analysis was conducted to assess the early outcomes in terms of the marks scored and subjective responses respectively. Statistical tools were used to identify if there is any significant difference between these media of teaching.

From the sample of students selected, 58% were found to have strongly agreed as to the lecture being interesting, while 42% were found to agree to the same, irrespective of the medium of instruction used. i.e whether chalkboard or power point presentation.

As far as understanding of the concepts taught by the lecture were concerned, 52% registered as strongly agreeing while 46% as agreeing. However 2% out of the 50 students ie only one student is found to have disagreed with regard to this parameter.

Considering the future applicability of the concepts taught, it is found that 82% strongly agreed and 18% agreed to the same. (Table 1)

Except for the second indicator (understanding of concepts taught), no student has registered either disagree or strongly disagree for the other two response evaluation indicators. These results further go to show that based on the three response indicators (irrespective of the medium of teaching), students have unequivocally and overwhelmingly accepted the lecture and responded to it in a positive way.

To identify the response of students towards the two different media of teaching, the data has been analyzed by comparing the three response indicators between the two groups. ie. Chalkboard and power point presentation. (Table 2)

Response Indicators	Re- sponse	Chalk Board		PowerPoint Pre- sentation	
		Stu- dents	Per- cent	Stu- dents	Percent
Was the class interest- ing	Agree	8	32.0%	13	52.0%
	Strongly Agree	17	68.0%	12	48.0%
	Agree	9	36.0%	14	56.0%
Have you clearly un- derstood the concepts taught	Strongly Agree	15	60.0%	11	44.0%
	Disa- gree	1	4.0%	0	0.0%
Do you think what was taught would help you in your future medical practice	Agree	5	20.0%	4	16.0%
	Strongly Agree	20	80.0%	21	84.0%

Table 3. Distribution of Students Response (Strongly Agree) to the Lecture Based on Media of Teaching

Response Indicators	Chalk Board		PowerPoint Presentation	
	No. of Students	Percent	No. of Students	Percent
Was the class interesting	17	58.6%	12	41.4%
Have you clearly understood the concepts taught	15	57.7%	11	42.3%
Future applicability of concepts taught	20	48.8%	21	51.2%

Based on the analysis (here only the strongly agree response is being taken into account) it is found out that 58.6% of students who were lectured using chalkboard as the medium of teaching, have strongly agreed to the fact that the class was interesting, while 41.4% of students taught using power point presentation have strongly agreed to the same. (Table 3)

As far as the understanding of concepts taught is concerned, it is found that 57.7% and 42.3% of students taught by chalkboard and power point respectively have strongly agreed to this.

48.8% of students taught with chalkboard have strongly agreed to the future applicability of concepts taught indicator, while 51.2% of those taught using power point presentation have similarly opined.

Hence from the above observations it is clearly understood that except for the last indicator. i.e future applicability of concepts taught, the immediate response of students to the other two indicators is evidently and significantly better for the group taught with chalkboard.

Now as far as the testing of the hypothesis that is “traditional media of teaching like chalkboard is more effective than newer electronic media like power point presentation in lectures in Forensic Medicine” is concerned, the method used was to objectively evaluate both groups by conducting a test paper and subsequently subjecting the scores so obtained to statistical analysis. The statistical tool used to analyze the difference between the two media of teaching for this study was ANOVA.

The p-value ie probability value so obtained by statistical analysis for this study is 0.796743. Any p-value more than 0.05 has no statistical significance. In other

Table 4. Summary

Groups	Count	Sum	Average	Variance
Chalk Board	25	176	7.04	3.54
PowerPoint Presentation	25	173	6.92	1.826667

Table 5. ANOVA

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	0.18	1	0.18	0.067081	0.796743	4.042652
Within Groups	128.8	48	2.683333			
Total	128.98	49		173	6.92	1.826667

words since the p-value for this study is well above the 0.05 mark, it must be concluded that there seems to be no statistically significant difference between the two media of taking lectures when the individual scores in test papers are compared. (Table 4 & 5) This is because the scores obtained by students from the two groups when compared is found to be more or less similar.

However based on the statistics regarding the subjective indicators as detailed above in the previous paragraphs are concerned, i.e. the immediate response of students to the classes which is the short term outcome for this study, it can be clearly seen that chalk board is unambiguously more appealing to students than power point presentation from a purely subjective point of view.

LIMITATIONS OF THE STUDY

Students’ levels of curiosity and interest on the same topic may vary unpredictably between the two methods of lecture presentation.

CONCLUSIONS

Lectures using chalkboard in Forensic Medicine are more appealing to students when compared to power point presentation from a subjective point of view with respect to the levels of interest and understandability of the topic.

At the objective level based on the marks scored in the test paper, there seems to be no statistically significant difference between the two media of teaching for conducting lectures.

END NOTE

Author Information

1. Dr Renju Raveendran, Associate Professor, Department of Forensic Medicine, Government Medical College, Thiruvananthapuram.
2. Dr Sajithkumar R, Professor of Medical

Education, MCI Nodal Centre for Faculty Development, Government Medical College, Kottayam

3. Dr Lillykutty Pothan, Associate Professor of Medical Education, MCI Nodal Centre for Faculty Development, Government Medical College, Kottayam
4. Dr Lijo Mathew, Assistant Professor of Medical Education, MCI Nodal centre for Faculty Development, Government Medical College, Kottayam.

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