Original Article

Comparison of Power Point Presentation, Transparency Overhead Projector (TOHP) and Black Board for Undergraduate Medical Teaching

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ABSTRACT

Introduction: Use of technology in modern education is inevitable. Nowadays the most common ways of lecture delivery include PowerPoint presentation, transparency overhead projector (TOHP) and black board (chalk and talk) methods. Limited researches are available to compare the effectiveness of these teaching tools in public sector universities of Pakistan. Our Objective was to compare the students' perception regarding these three teaching tools in Dow Medical College Karachi.

Study Design: A cross sectional, questionnaire based study.

Place and Duration of Study: This study was conducted at Dow Medical College, Karachi from April to September 2010.

Material & Methods: A cross sectional, questionnaire based, study was done. Questionnaire consists of MCQs, grading and open ended questions. A sample size of 314 subjects was taken including students from all current batches in Dow Medical College, Karachi. Information was collected to compare different features among Power Point presentation, transparency overhead projector (TOHP) and black board (chalk and talk) tools.

Result: Our study depicted that student overall preferred the use of PowerPoint presentation in lectures than blackboard and overhead projector. The students have a more favorable response towards PowerPoint presentation than Blackboard and Transparency for better inclusion of content, understanding of text and figures, use of examples and illustrations and for summarizing the lecture. ($p=<0.001$).

On the other hand, they preferred blackboard over Power Point presentations and transparency for facilitation of interaction between teacher and students, coping with teaching speed and stressing on important and relevant points. ($p=<0.001$). The result also indicated that the students considered blackboard and PowerPoint presentation equally effective than transparency to develop interest in learning and to grasp the contents. ($p=<0.001$)

Conclusion: Our study concluded that PowerPoint presentation and Black Board teachings are equally important and should be used as an instruction tool for their respective aspects of learning. One teaching modality is not enough to cope up with student's level of understanding and thus a combination of modern and traditional style of teaching should be incorporated.

Key Words: Teaching Tools, Undergraduate Teaching, Medical Teaching.

INTRODUCTION

Use of technology in modern education is inevitable. Numbers of technological options are available as instructional tools which are being used in various universities to keep pace with the contemporary education system but researches supporting their effectiveness have been limited.

The most common ways of lecture delivery include PowerPoint presentations, transparency overhead projector (TOHP) and chalk and talk (Black board) method. There is mixture of views regarding their effectiveness as some studies show no difference in test performance[1] while others show marked difference when PPT replaced the use of TOHP[2]. So it is still not clear whether the use of particular method is better than others. Moreover, most of these studies have been conducted in developed countries; still there is an intense need to carry out these researches in developing countries like Pakistan.

The use of multimedia has become a common practice in universities. Lectures are the major contributor among the medical teaching methodologies. Every possible effort should be made to increase their effectiveness. Data suggests that student's level of understanding a lecture is at lower cognitive scale and students expect that the information being delivered to them should be in concordance with their own learning process[3]. Employing multimedia could be rewarding as studies have shown that students prefer PPT over TOHP[4] but at the same time it is challenging to prove its effectiveness.

Our Objective was to compare the students' perception regarding these three teaching tools in Dow Medical College Karachi. Our study will also be able to highlight whether one modality is enough for learning

or a combination of modalities should be used to supplement each other in order to meet the standards of learning.

MATERIALS AND METHODS

A cross sectional study on the comparison of different teaching tools for undergraduate medical students was conducted at Dow Medical College from April to September 2010. Medical students participated as subjects were being delivered lectures using blackboard (BB), transparency overhead projector (TOHP) or PowerPoint (PPT) as teaching tool. The convenient sampling technique was used. A total of 314 students filled the Questionnaire from whom consent was taken and participants were given opportunity to refuse filling the form.

The questionnaire compared student's views about the impact of lecture delivered by three different methods by grading the parameters using five point likert's scale. Students were asked about which tool allowed better inclusion of content, better understanding of text and figure, facilitated interaction between students & teacher, and allowed better use of examples and illustrations. Moreover it compared which modality generated interest in learning and which of above was more helpful to grasp the content so that students were better able to cope up with teaching speed.

Data was analyzed using SPSS 16.0 and significant differences were noted. (p=<0.001)

RESULTS

Table I indicates that students have a more favorable response towards PowerPoint Presentation than Blackboard and Transparency for

- Better inclusion of content
- Better understanding of text and figures
- Better use of examples and illustrations
- Summarizing the lecture

Table No.1 Comparison of Teaching Tools for Medical Teaching Power Point Presentation, Transparency Overhead Projector (TOHP) and Black Board Perception of Medical Students

Qualitative Measures	Over Head Projector (% out of total 314 students)					Black Board% (% out of total 314 students)					Power Point Presentation% (% out of total 314 students)				
	4*	3	2	1	0	4	3	2	1	0	4	3	2	1	0
Better inclusion of content	3.50	37.57	38.53	13.69	6.68	36.30	36.30	31.21	12.10	2.229	46.49	44.58	6.050	1.27	1.59
Better under-standing of text and figures	4.140	25.15	47.45	18.47	0.955	21.97	38.53	25.79	11.46	2.229	55.73	32.48	7.006	3.50	1.27
Better use of examples and illustrations	3.82	30.89	45.85	13.37	6.050	23.56	34.71	31.21	7.64	2.866	51.27	37.26	6.36	4.140	0.955
Summarizing the lecture	13.69	30.89	33.75	14.96	6.68	27.07	2.96	2.96	10.50	0.318	5.09	36.62	14.96	4.77	3.50
Facilitation of interaction between students and teachers	7.96	33.12	37.26	16.56	5.095	60.50	28.025	5.73	3.18	2.54	11.14	31.52	35.03	18.15	4.14
Coping with teaching speed	7.32	40.76	30.89	9.55	5.41	44.26	30.57	17.51	6.050	1.59	26.75	27.38	26.75	14.33	4.77
Stressing on important and relevant points	13.37	40.76	26.75	12.42	6.68	46.17	31.52	15.60	4.14	2.54	26.43	42.03	21.65	7.006	2.866
Generation of interest in learning	4.45	27.70	43.63	18.47	5.73	42.35	34.0	14.01	7.006	2.54	29.93	42.35	18.47	6.36	2.866
Helping to grasp the content	3.50	0.340	39.80	15.92	6.68	40.44	35.35	15.60	6.36	2.22	30.25	42.99	17.83	6.050	2.866

*0= No Opinion/Confused 1= Strongly Disagree 2= Disagree 3= Agree
4= Strongly Agree (Total Students= 314 n)

Table I also indicates that students have a more favorable response towards Blackboard than PowerPoint Presentation and Transparency for

- Facilitation of interaction between students and teachers
- Coping with teaching speed
- Stressing on important and relevant points

It was also noted that Blackboard and PowerPoint Presentation were considered equally effective than Transparency for

- Generation of interest in learning
- Helping to grasp the content

Students overall preferred PowerPoint Presentation over Blackboard and Transparency.

Considering responses to all of the learning tools, it was noted that Blackboard was rated favorably by a 69%±12% responses, similarly PowerPoint Presentation was rated favorably by a 72%±16% responses and Transparency by 40%±8% responses.

Several students commented that the effectiveness of the lecture depends upon the teacher, regardless of the method of delivery.

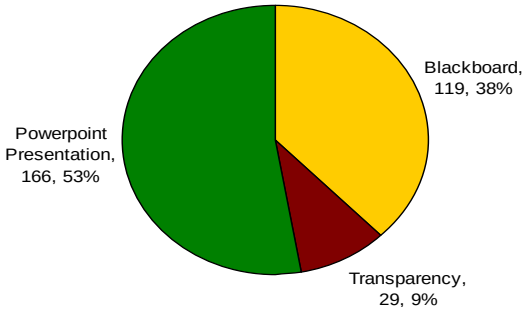

Figure No.1: Overall Preference

DISCUSSION

Lectures are a very ancient form for delivering knowledge and education to students. Lectures could be delivered by "chalk and talk", transparency slides (TOHP) and PowerPoint presentations. Each of these methodologies has their pros and cons.

In this study many of the students over all preferred power point presentation but a considerable number of students preferred blackboard and a small percentage preferred transparencies. Though, an earlier study inferred that majority of students' preferred traditional blackboard teaching to TOHP and PPT[5].

Students responded that Power point presentation allowed better inclusion of contents, better understanding of text and figures. It allowed better use of examples and illustrations. Majority believed that lectures can be best summarized to through power point. The choice of multimedia by medical students is also not surprising, as multimedia material has been shown to explain complicated topics with the aid of pictures, graphs, animations and simulations [6]

But there were certain aspects for which still Black board was preferred by students. They thought that blackboard not only facilitates the interaction between teacher and student but also generates interest in learning. Students expressed that blackboard enables them to cope with teaching speed so they are better able to grasp the contents. These points are consistent with other similar studies[7].

It is interesting to note here that Transparency slides were considered for limited choices by some students. There could be 3 main reasons for that. Firstly, many transparencies are hand written which makes many of them illegible. Secondly, complex diagrams and schemes can't be explained in a detailed fashion as possible with multimedia. Thirdly, motion on the screen is important to hold viewer attention. These features are lacking in both OHP and 35-mm slides, whereas animation plays a major role in multimedia design[7]

Above study indicates that power point presentation lacks on the part of interaction between students and teacher. The whole process becomes one-way passive learning experience. Yet at the same time blackboard is not a wholesome method for delivering lectures as it may not enable the full inclusion of contents scheduled for that lecture. Even intricate and colored figures are difficult to draw on black board[3]

In the opinion of some students the effectiveness of the lecture depends upon the communication skills of teacher and in this context, a study points out that a good teacher knows how to handle teaching pace keeping in view the understanding of students and then lead them through the new and more difficult points[8]

When multimedia is used to supplement regular instruction, gain in achievement is consistent, but when it is substituted for traditional instruction, achievement results are mixed. The inability to move away from the computer desk inhibits a teacher walking freely across the room. Hence, when the faculty tends to focus on the technology the students feel ignored [7]

Thus, increasing technology usage in the classroom may help to improve certain aspects of the classroom experience. However, depending on the instructor's knowledge of and comfort level with technology, the instructor effort required to learn to effectively use technology may not be worth the cost [9]

There is definite evidence to suggest that multimedia does improve learning effectiveness in certain situations. However the key point is to understand those key situations and tailor multimedia content for those situations[10].

CONCLUSION

Even though there were no statistically significant findings, our data suggest that PowerPoint presentation is more effective as compared to black board and transparencies in allowing better inclusion of contents, understanding of text, figure and examples. Limited students have chosen transparencies to be effective. They thought that lecture delivery depend upon teacher and student interaction. It appears that Power Point presentation lacks interaction between teacher and students, when compared with blackboard. However it is in the hand of teacher how effectively he is taking advantage of the technology provided.

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