EFFECTIVE LECTURE DELIVERY;
THE MEDICAL STUDENTS' PERSPECTIVE

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ABSTRACT... Objectives: To assess the perceptions of medical students regarding characteristics of effective delivery of lectures. To make suggestions to promote active listening during lecture. To give recommendations regarding organization of lecture. **Data Source:** Primary data collected by administration of Structured Questionnaire. **Design of study:** Descriptive Cross-sectional. **Setting:** University Medical College, University of Lahore. **Period:** August to September 2011. **Materials and methods:** The study population comprised of 580 students studying at University Medical College of University of Lahore. The study sample was comprised of 123 students, 63 male and 62 female. The sample was determined by using non-probability convenience sampling technique. The study variables included socio-economic demographic and characteristic related to teaching skills and delivery of lectures. Results: The most important effective lecture delivery characteristics noted by the respondents of this study in order of were prior knowledge of the topic (87.8%), subject knowledge (82.9%), basic lecturing skills (77.2%), organization of the lecture (76.5%) and clarity (74%) of the lecturer regarding the underlying concepts. Majority of respondents reported the onset of boredom 20 minutes after the beginning of the lecture (37.4%) and during last 20 minutes (41.5%) in a lecture spanning over 60 minutes. The majority of respondents (78%) felt that they are motivated by the lecture. **Conclusions:** The most frequent characteristic required for effective teaching was prior knowledge of topic by students before the delivery. This study concludes promoting the friendly atmosphere during the delivery of the lecture.

INTRODUCTION

The lecture in its many forms is the most commonly used method for transferring information in medical education. There are, however, serious questions regarding the effectiveness of the traditional lecture approach. Although the lecture method is used extensively in medical education, academic physicians often are not trained in giving effective lectures[1]. Lectures in medical and healthcare education often have a poor reputation. Lecture format for large classes is outdated and ineffective[2].

Lecturing is frequently a one-way process unaccompanied by discussion, questioning or immediate practice, which makes it a poor teaching method[5]. Most educators learn how to teach based on their experiences as students. The "teach as I was taught" approach tends to perpetuate the lecture as a passive, one-way method of transferring information. The lack of faculty training in presenting effective lectures, rather than the method itself, may be the greatest weakness of the lecture.

Lectures are generally described from the instructor's point of view, and the student's need for interaction with the instructor is not addressed. In fact, lack of interaction is considered one of the major limitations of the traditional lecture[3].

Furthermore, when students have copies of the lecture notes or a text, a significant percentage would prefer reading them rather than attending classes that offer little or no interaction[2].

A study suggests that, "Clinical teaching and learning must be an intellectually challenging experience whereby students, through extensive interactive teaching, are able to gain thorough conceptual understanding[4]. The same study also cited evidence that interactive learning is enhanced through the effective use

of key teaching skills including questioning, demonstrating, providing positive reinforcement and reviewing.

There presently are many calls to move away from the traditional lecture to interactive computer learning systems that allow students access to information when and where they need it[2,5,6]. While this shift to "just in time" information provided by computer is occurring, there is, and will continue to be, a need for educators who are prepared to deliver lectures.

Effective teaching is critical for student learning. Literature on teaching and learning abounds in almost every area in higher education. However, information specific to effective teaching behaviors in the classroom, laboratory, and clinic are relatively limited in the health setting, especially in dentistry and dental hygiene. Research that has been conducted tends to highlight the clinic instead of the classroom and laboratory settings[7,8].

The lecture format requires the teacher to be active and the learner to be relatively passive. It is a format which is well-suited for transmitting knowledge and facilitating comprehension, and can be particularly effective for dissemination of new information. When done well, the lecture/presentation makes a valuable contribution to the learning process. A good lecture can make something more exciting than even the best written book or most lively video.

Various studies reveal that effective teaching in the classroom includes behaviors such as organization, enthusiasm, empathy, rapport, clarity, general knowledge, and being available for students[9,10,11].

An effective lecturer must present concepts in an organized manner and the delivery must hold the learners' attention. It is crucial that the topic be introduced appropriately, basic concepts are presented in a coherent and enthusiastic manner, important information is emphasized, the audience is actively involved, and there is a proper conclusion. Two of the most important parts to a lecture are the introduction and conclusion.

A study by Talwar and Weilin[3] identified qualities that both full- and part-time dental educators perceived important in an effective teacher. Their findings suggest that, for didactic instruction, clear organization was most important. Thus, organization was seen as an important teaching quality by students participating in this study[4].

Terry O'Connor suggests structuring a lecture to flow through five different "social learning activities." Including entrance i.e., set tone and establish trust, established by greeting students, exchanging information, settle down i.e., shifting individuals from focus on individual and personal to group tasks, established by setting agenda for the day, dramatically grabbing attention, distributing a handout, posing a problem or a thought before the class and work which means working through the main substance of the material. He suggests a basic pattern, that might be repeated several times through the main body of the lecture and which comprises of presenting concept, providing example, asking students some example (an active participation that resets attention) and closure which should include clearing up , a time for individuals to reflect on what has happened, and some sort of summary exercise like the one minute paper, or a summary by the instructor, or a connection to previous work[12].

The object of a lecture is not just to "get through" the material as some running machine. The goal is to have the listener learn. Attempting to cover too much result in less learning and remembering by students. Various studies show that students who listen to low density lectures actually score higher on tests than those who listen to high density talks. Therefore, the audience will learn more when they are given fewer concepts that are explained well.

In addition, if there is to be a question and answer period, it must also be accounted for when developing the lecture. Typically, speaking at the rate of 100 to 120 words per minute allows listeners to take notes and follow the lecture.
The speech rate of 75 words or less per minute enables the students to retain information without taking notes.

Objectives should always be written in terms of what the

students should learn or be able to do at the end of your presentation. In this way they serve as a guide for organizing and developing presentation content, and can also be useful in deciding how to measure if the delivery of lecture has been successful in imparting information[13,14,15].

Visual aids should be simple and easy to understand. They should be used to convey only one concept. Too many words, numbers, and figures should not be incorporated into the visual aid. Letters and numbers must be large enough to be read. As a general rule when using slides, use no more than seven words per line and no more than seven lines per slide. Presenting too much information in the time allotted makes the presentation rushed and difficult for the listener to follow.

Use visual aids. PowerPoint has its detractors (some people think it makes students passive and likely to fall asleep in darkened rooms, but some studies show that it can be effective, especially if it can include graphics as well as bullet points[16].

Students (especially less mature students) tend to lose interest after a fairly short period of time. Students have short attention spans, according to some observers, 15 or 20 minutes is as long as one can expect. After fifteen minutes, it is useful to "reset" the attention by interjecting some activity by the students. A presentation given at University of Delaware established the need to reset students' attention every 15 minutes[12].

Enthusiasm or expressiveness of the teacher has been found to be key factor in effective delivery of the lecture. Different studies have shown that enthusiastic instructors who show high energy or a high level of interest in the content material also influence students[4,17,18,19.]

Expressiveness enhances students' scholastic behaviors such as attendance to subsequent lectures, the amount of homework completed, and academic achievement[20,21]. Sometimes referred to as "enthusiasm," expressiveness might have an effect on students in the form of higher motivation and increased studying outside of instruction time[22].

Some education researchers have studied classroom humor. Students respond best to humor about the course, gentle humor about students themselves, and good spirited self-depreciating humor about the professor. They don't like sarcastic or negative humor[23].

Eye contact is thought to produce varying levels of compliance in students, to create interest and challenge among students, and to increase a sense of personal relationship and intimacy between students and instructors[21,24,25]. Furthermore, students who have had eye contact with their instructors during verbal presentations have higher recall scores on lecture material than those with no eye contact[25].

The students learn more when they are involved in the lecture or a presentation, and less when they are simply passive listeners. If the speaker incorporates activity, participation, and response into the structure of the presentation, the students can learn more. Any activity required, of course, should be relevant to the objectives of the presentation. Handouts are a way to communicate the structure of your lecture and note-taking should be encouraged to facilitate learner activity. Questioning the students is particularly helpful and not only keeps the learners attention focused on the speaker, but, also lets the speaker know where the students are in terms of knowledge base and understanding of the presentation[27].

Interspersing group activities e.g., a ten minute group discussion after twenty minute lecture, followed, followed by another twenty minute lecture can be much more effective than 50 minutes of straight lecture[28].

Feedback from students can also be solicited during the lecture, for example, by asking for a show of hands "How many feel that . . . ?" or scanning the room for the student who is least engaged in the lecture and then does whatever he needs to do to get that student to pay attention (e.g., speak faster or slower, louder or softer, tell a joke, or somehow change the pattern).

The students can learn more rapidly when they receive timely feedback about their progress. Feedback from the teacher needs to be balanced - learners need to know what they have done well, not just what must be improved. Such balanced feedback reinforces learner strengths and helps the learner focus on improving areas of weakness. The teacher can involve the students in the educational process in a variety of ways, such as asking thought-provoking questions, "brainstorming" ideas, and helping the learner establish personal educational goals[30].

Students are direct consumers of teaching and learning in our class rooms. They can provide valid and reliable information about how the teaching and learning processes are working in out class room.

The purpose of this study is to characterize the educational experience of the students and make recommendations for effective teaching in the class rooms. The findings of this study can provide guidance in developing undergraduate medical education, as teachers are being prepared to enter the teaching environment. The ultimate goal is the improvement of undergraduate medical teaching.

OBJECTIVES
1. To assess the perceptions of medical students regarding characteristics of effective delivery of lectures.
2. To make suggestions to promote active listening during lecture.
3. To give recommendations regarding organization of lecture.
4. To help designing student rating scales as an evaluative component of the teaching system

MATERIALS AND METHODS

Study Population
The study population was comprised of all the students enrolled at the time of study at the University Medical College of University of Lahore. The college is situated at Riawind Road, Lahore. It comprises of 580 students studying in all 5 years of the MBBS course.

Study sample and Sampling Method
The study sample was comprised of 123 students, 63 male and 62 female belonging to year 1 to 5 of MBBS course. The sample was not representative of the study population. The sample was determined by using non-probability convenience sampling technique. The sample size represents 21.2% of the medical student body of UOL. Although it was planned to take proportionate number of students will taken from all 5 classes based on gender and class size. At the time of data collection it did not work, because three of the five year classes have been exempted from attendance at the college for the preparation of send-up examination.

Data Collection Instrument
Data was collected by using semi-structured questionnaire comprising of open and closed-ended questions covering various socio-demographic and teaching characteristics.

Analysis
Data was entered on SPSS version 11 and frequencies and percentages of various characteristics were determined

RESULTS
Table-I shows the various characteristics which are prerequisites for the delivery of lectures in the class room. The most important characteristics noted by the respondents of this study in order of were prior knowledge of the topic (87.8%), subject knowledge (82.9%), basic lecturing skills (77.2%), organization of the lecture (76.5%) and clarity (74%) of the lecturer regarding the underlying concepts. Fewer responses were given to the characteristics related with task-oriented behavior and empathy.

Regarding phenomenon of boredom and confusion among students during the delivery of lecture, majority of respondents reported the onset of boredom 20 minutes after the beginning of the lecture (37.4%) and during last 20 minutes (41.5%) in a lecture spanning over 60 minutes.

The characteristics underlying the onset of boredom and confusion of students were held responsible by almost

Table-I. Characteristics of effective lecture delivery (N=123)								
	Often		Sometimes		Never		Missing Values	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%
Prior knowledge of the topic	104	87.8	11	8.9	4	3.2	-	-
Subject knowledge	99	82.9	16	13.0	5	4.1	-	-
Basic lecturing skills	95	77.2	15	12.2	13	10.5	-	-
Organization of the lecture	94	76.5	24	19.5	5	4.1	-	-
Enthusiasm of the teacher	92	74.8	24	19.5	7	5.7	-	-
Clarity	91	74.0	22	17.9	8	6.5	2	1.6
Being available for students	84	68.3	26	21.1	11	8.9	2	1.6
Learning	81	65.8	28	22.8	12	9.7	2	1.6
Breadth of knowledge	81	65.9	30	24.4	12	9.8	-	-
General knowledge	75	61.0	38	30.9	10	8.1	-	-
Feedback	75	60.9	27	22.0	21	17.0	-	-
Individual report	72	58.6	41	33.3	8	6.5	2	1.6
Group interaction	72	58.6	31	25.2	20	16.2	-	-
Empathy	59	48.0	47	38.2	11	8.9	6	4.9
Task oriented behaviors	48	39.1	46	37.4	25	20.4	4	3.3

half of the respondents sometimes and by another half of respondents often.

A large number of suggestions came out on the content analysis of open-ended question regarding how the confusion and boredom can be eliminated from lecture showed the suggestions given by students. The suggestions included interval Break for 4-5 minutes, energetic style, sharing news/reviews with students, adding an ad/clipping about the topic, cracking small jokes, elements of humor, interactive lecture delivery/class participation in discussion, teaching in a friendly environment, sympathetic behavior of teacher, teaching in friendly and interesting way, minimizing duration of lecture to 45 minutes, and well prepared lecture to convey subject knowledge properly.

Causes underlying the inability of students to speak when questions asked
On the question that why it often happens when teacher asks some question and only few students can make them answer. Most of the students just become tongue-tied and unable to speak despite knowing the answer. The most frequent causes identified were lack of confidence and fear of being laughing stock if they could not answer right.

On the question that what the respondents think are characteristics that can promote interactive environment? The content analysis showed the suggestions which include friendly behavior of teacher, friendly atmosphere, good teacher-student relationship, knowing the names of all students by the teacher , holding competition among batches and elimination of favoritism.

Notes-taking

In this study the majority of respondents (80.5%) took notes of the lecture being delivered. However the percentages and frequencies of taking notes decreased from first 10 minutes to last 10 minutes.

Distraction of students by other inattentive students

On the issue of distraction, only 7.3% of the respondents of this study were never distracted by other inattentive students. On the question to various activities responsible for distraction of students attentive to the lecture, the respondents in large number pointed the use of mobiles and headphones by inattentive students as cause of their distraction. Other causes identified by respondents were receiving SMS from fellow students, cross talk, continuous talk, mumbling, noise making, mischievous behavior, using mobiles, wearing headphones and laughing and constant smiles.

On asking why these inattentive students do, respondents gave a number of responses. Majority said that they do it of fun seeking. A few respondents said that they do it get the satisfaction that other students will also not be able to study properly. One respondent said that some students take benefit to indulge in such activities because they enjoy good rapport with the teacher. One respondent said that inattentive students feel that they are not an important part of the class. Some respondents said that inattentive students do it to get mischievous pleasure by distracting the teacher and some others take their studies granted so they don't have to be attentive in the class and are free to indulge in mischievous behavior. One respondent said that those students are discourteous to their fellow students and another simply said he don't know why such students manifest such behavior.

Motivation to read further by attending lectures

Table II shows that majority of respondents (78%) felt that they are motivated by the lecture. Of them 80.5% of respondents use text book to read further on the topic delivered in the lecture.

Preference for mode of delivery of lecture

One the question that which mode of delivery of lecture is preferred by the students, majority of respondents

Table-II. Motivation by lectures (N=123)		
	Frequency	**%age**
Motivation to read further	96	78.0
Yes	24	19.5
No	03	2.4
Sometimes		
Resources used to read	99	80.5
Text Books	35	28.5
Internet	27	22.0
Published notes		

(45.5%) suggested mix of all methods including chalk & talk, multimedia and projector slides. However 34.1% of respondents favored multimedia over other modes of delivery.

The respondents who preferred multimedia over other modes of delivery said that multi-media is an interesting way of demonstration, more attractive and keep students attentive.

Teacher can show a variety of stuff including pictures, diagrams, videos from internet and other resources and it also helps in greater teacher-student interaction But one respondent said that use of power point presentation in dark environment may induce sleep and some students are prompted to indulge in such activities that distract other students.

The respondents who preferred white board over other modes said that teacher himself is more attentive and energetic in using white board and in other methods teachers read the written material from A to Z

Opening of lecture

On this question regarding opening of lecture (table III) majority of the respondents suggested that lecture should be opened by mentioning of some recent news event, powerful quote, asking a provocative question and giving some string example. Least responses given were unusual analogy and personal anecdote.

Tables IV and V show that reinforcement of central idea in lecture (56.9%) and summary of key points (52.0%) in

Table-III. Opening of lecture (N=123)		
	Frequency	%
Mention of a recent news event.	48	39.0
Powerful quote	42	34.1
Open with a provocative question	41	33.3
Striking example	40	32.5
Dramatic contrast	28	22.8
Short questionnaire	26	21.1
Demonstration	25	20.3
Startling statement	2	17.9
Personal anecdote	19	15.4
Unusual analogy	10	8.1

Table-IV. Reinforcement of the central idea in lecture (N=123)		
	Frequency	%
Short video	70	56.9
Make a dramatic statement	27	22.0
Give assignment on key note	25	20.3
Refer to the introduction	24	19.5
End with a quotation	23	18.7

Table-V. Summarizing key points in lecture (N=123)		
	Frequency	%
Short video	64	52.0
Photograph	30	24.4
Diagram	28	22.8
Chart	22	17.9
Model	13	10.6
Graphs	10	8.1

the lecture should be done by showing short video.

Individual rapport with students
On asking question what respondents think individual rapport with the teacher is manifested in. Most of the respondents said that individual rapport is manifested in friendly behavior of the teacher. One respondent said that individual help in understanding academic problems of students and in solving them.

On the question of what students expect from the teacher when they are on good rapport with him. The respondents gave various responses in this regard. The students expect Proper guidance in exams and other techniques, help in collection of good material, help in studies. Some respondents said that students try to maintain their good academic status and moral support. One respondent said that teacher ignore their minor mistakes.

One respondent said that students expect good marks from the teacher when they are on good rapport with teacher. But another respondent said that individual rapport becomes dubious when some teachers do favoritism. Another respondent said that teacher should know all students and give them equal importance.

DISCUSSION & CONCLUSION
This study encompasses the findings based on perceptions of medical students regarding characteristics of effective lecture delivery. This study is of its first kind conducted on medical students of this newly established medical college. The study conducted was designed to establish evidence on the basis of which the quality medical education could be delivered. There were fifteen characteristics of effective lecture delivery on which respondents were asked to give their ranking as the most required characteristic (table II). Of them the most frequent one was prior knowledge of topic by students before the delivery. This finding has also been regarded the pivotal factor to achieve high academic performance by a report published by National Center on Accessing the General Curriculum. The report produced the evidence that the prior knowledge is associated with beneficial academic behaviors and higher academic performance[24].

Further prior knowledge of topic by students can also address the issue of the student's need for interaction with the instructor, which has been considered one of the major limitations of the traditional lecture[3].

It is often observed that there is no consensus or uniformity among the teachers regarding their teaching methodologies. This lack of uniformity is the main obstacle whereupon the performance of teachers cannot be assessed and the same also provide cover-up for the inadequacies and deficiencies in the teaching methodologies. This deficiency also covers up the inadequacies in effective delivery of lectures.

Our study identified fifteen categories of effective lecture delivery. (See table-II) The most important perceived characteristics related with effective delivery were subject knowledge, basic lecturing skills, organization of the lecture, enthusiasm of the teacher and clarity of teacher of the subject. A study done at Yale University School of Medicine revealed three categories of importance about delivery including knowledge base of teacher, having passion/enthusiasm, and interaction with the audience in similar to our study[25].

Our study showed that they get bored during the delivery of lecture after 20 minutes and then during the last 20 minutes. The onset of boredom among students during delivery of lecture reduces its efficiency. A study[26] presented at a conference on Distance Teaching and Learning also showed that students tend to fall into a REM cycle in the middle of a lecture. The same study suggested a twist in material l, adding random jokes, showing media clips to prevent the class from getting bored and sleepiness. The respondents of our study suggested the same manner that lectures should be delivered in the interactive manner by inducting some activity like asking questions, showing animated illustration or adding some element of humor after every 20 minutes. A few studies[27,28] suggested the same. If this format of lecture is adopted by the teachers, it will not only help in increasing the efficiency but also make more valuable than didactic lectures[29].

There are probably as many ways to "teach" as there are to learn. Perhaps the most important thing is to be aware that people do not see the world in the same way. They may have very different preferences than you for how, when, where and how often to learn.

Educationists are divided on the superiority of chalkboard teaching or PPT or TOHP use for teaching[30]. During lecture, both the visual and auditory senses are available to absorb information and assistance in the form of a visual aid is useful[31].

A chalkboard is uniquely effective as a medium of classroom instruction and has been used commonly in the lectures, while the use of transparencies with an overhead projector (TOHP) is also popular[32].

Respondents of this study preferred mix of all modes including chalk and talk, multimedia and slides projector. But only a few respondents singled out chalk and talk method. Recently, the use of electronic presentations is now common in medical colleges, as in other colleges and universities. Microsoft PowerPoint (PPT) is the most popular package used out of all electronic presentations. The once ubiquitous 35-mm slide projector seems to beheading for extinction.

Although a good teacher with lack of audiovisual aids will be better received than the poor teacher with the best audiovisual aids[33], learning with audiovisual aids does seem to have a great impact on students[34].

Using multimedia is unavoidable as technology is making inroads in our lives at hectic speed. The students become well versed with these technical innovations and use of multimedia will be more effective and efficient in the delivery of lectures. Organization of lectures has been described by the majority of respondents as one of the most important characteristic of effective delivery. Our study showed that the reinforcement of central idea in the lecture and end of the lecture should be done with showing short video. Knowledge of student learning preferences can aid faculty in class preparation, designing class delivery methods, choosing appropriate technologies, and developing sensitivity to differing student learning preferences within the distance education environment[35].

Recommendations

1. The findings of the study may be utilized in developing checklist for assessment of the performance of teachers by the students.

2. This study recommends that lectures should be structured in such manner that after each 20 minutes of the delivery, some activity e.g., sharing some amusing thing happened in the class or joke related with the topic or just asking question or summarizing the things told by showing some picture , illustration and short video ,etc; is inducted. This will facilitate in raising the alertness of the students and purge out the boredom permeating throughout the class.

3. This study recommends promoting the friendly atmosphere during the delivery of the lecture. This recommends calls upon the teacher to get rid of monotony in their personal and professional attributes. A smiling-faced teacher is always instantly welcomed by the students and put them in the receptive mood.

4. This study recommends that topic of the lecture should prepared while keeping the duration of time allocated for that particular lecture. This calls upon the teaching faculty to plan and design their annual plan for the delivery of lectures for the current year prior to the start of new class.

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