TEACHING METHODOLOGIES;
WHAT IS THE STUDENTS' PERSPECTIVE?

ORIGINAL
PROF-1891

DR. FATIMA MUKHTAR
MBBS, DTM&H(U.K),MPhil
Assistant Professor,
Dept of Community Medicine
LMDC, Lahore.

DR. NOREEN HASHMI
MBBS, MD(USA),MPH(USA)
Associate Professor,
Dept of Community Medicine
LMDC, Lahore.

MR. MUHAMMAD ALI RAUF
4th Year Student
LMDC, Lahore.

Miss. Amna Anzar
4th Year Student
LMDC, Lahore.

Mr. Khurram Islam Butt
4th Year Student
LMDC, Lahore.

Mr. Moneeb Ahmed
4th Year Student
LMDC, Lahore.

Mr. Kumail Abbas
4th Year Student
LMDC, Lahore.

ABSTRACT... Objective: To determine preferences of medical students for modes of teaching, qualities of a good teacher and assessment techniques in medical education. **Design:** A descriptive cross-sectional study. **Setting:** Lahore Medical and Dental College, Lahore. **Period:** January 2011. **Material & Methods:** All students of third and fourth year MBBS classes were included in the study (n=127). A pre-tested questionnaire was used for data collection. A 7-point Likert scale ranging from 1(strongly disagree) to 7(strongly agree) was used to determine student's preferences of teaching styles. The data was recorded using SPSS version 16.0. Descriptive statistics were computed. **Results:** The preferred teaching methods for basic science subjects were skills laboratory 88(70%), followed by problem based learning 70(55%) and interactive lectures 65(51%). The same teaching methods i.e. skills laboratory 101(80%), problem based learning 89(70%) and interactive lectures 79(62%) were also popular for the teaching of clinical science subjects. The least preferred teaching method for both basic 51(40%) and clinical 58(46%) sciences was didactic lectures. The desirable quality of a good teacher was reported as teaching skills 111(87%) and the preferred assessment technique was found to be multiple choice questions 90(71%). **Conclusions:** Students prefer the student centred teaching styles as opposed to the traditional approach. Good teaching skill is the most desirable quality of a teacher and most students like to be assessed by multiple choice questions.

Key words: Medical education, Teaching style, Assessment technique.

INTRODUCTION

The objective of teaching is to urge learner to broaden their horizon and stimulate them to gain knowledge and make proper use of it. So then the question arises, how can the teaching methodology be so effective that not only this goal is achieved but it also increases passion in students to learn what is taught and retain it in the long run[1].

Medical education is rapidly evolving bringing radical innovations in teaching. There is a shift from the traditional, one way lecture oriented approach to a more student centered approach, where the transfer of knowledge in not uni-directional rather the result of interaction and discussion. This new approach promotes active student participation fostering deep self directed learning[2]. Teacher centered learning is identified as a de-motivating element for the students, which hinders their deep self directed learning, and eventually affects their prospects of becoming a good physician[3].

There are approximately 70 different teaching methodologies, which are being used by teachers in various universities worldwide. Each teaching method has its own merits and demerits. Some of these teaching strategies include one way lecture, lecture with discussion, brainstorming, problem based learning (PBL), role playing and group discussions[4]. However, the kind of subject that is being taught, whether basic or clinical also guides the teacher in selecting the type of teaching strategy to be employed. In most universities, integration of basic and clinical science subjects is

practiced, whereas PBL is adopted to teach basic sciences such as anatomy[5].

Teaching is a very difficult task and studies by MacManaway[6] and later Gibbs et al[7] claim that the average attention span of a student is approximately 20 minutes[8]. In this time it is the teacher's responsibility to impart maximum knowledge, which can be absorbed by the student[9]. It has been seen that students' feedback about their preferred teaching method is a very effective technique in increasing students' interest and understanding of the subject[10].

In order to improve the quality of teaching and make it more effective, it is important to know students' views regarding various teaching and evaluation methods being practiced in their medical schools[10]. This study was therefore, undertaken with the aim to determine the preferences of medical students regarding modes of teaching, qualities of a good teacher and assessment techniques in medical education.

MATERIAL & METHODS

This cross-sectional descriptive study was conducted at Lahore Medical and Dental College in January 2011. Non-probability convenient sampling technique was used to collect data from a sample of 127 medical students of third and fourth year MBBS. Data was collected using a questionnaire that was developed through literature review and discussions with medical students. The questionnaire included both open ended and closed ended questions. The questionnaire requested the students' background information, their most preferred and least preferred teaching style for the basic and clinical science subjects, their preferred assessment modalities and desirable qualities of a good teacher as perceived by the medical students.

Permission was obtained from the college administration before data collection. The purpose of data collection was explained to the respondents before questionnaire administration. The respondents were included in the study after their informed consent. Confidentiality and anonymity of the data was assured.

The data was entered using the statistical package for social sciences (SPSS) version 16. Data were collated and presented in tabular and graphical form. The preferences of students for teaching styles and qualities of a good teacher were analyzed using a 7-point Likert Scale.(1=strongly disagree, 7=strongly agree).

RESULTS

A total of 127 medical students participated in the study, among which 64 (50%) belonged to 3rd year MBBS and 63(50%) were from 4th year MBBS. Majority of the respondents were females 82 (65%) and only 45 (35%) were males. The age category of 20-22 years comprised of 86(68%) of the respondents, whereas, 18 (14%) and 23(18%) were in the age categories of 18-20years and >22 years respectively. (Table I)

Table-I. Socio demographic profile of respondents.

Characteristics		Number (N=127)	%age
Year of study	3rd Year	64	50
	4th Year	63	50
Gender	Male	45	35
	Female	82	65
Age group (in years)	18-20	18	14
	20-22	86	68
	>22	23	18

The students' preferences for the teaching methods was analysed on a 7 point Likert Scale. In which 1 =strongly disagree, and 7= strongly agree. The various options of teaching styles given to the students included didactic lecture, group discussions, skills laboratory, guest speakers etc. As is evident in table II, the popular choices for teaching of basic science subjects included skills laboratory 88(69%), followed by problem based learning 70(55%) and interactive lectures 65 (51%).

The ideal teaching methods for the clinical science subjects identified by the students included the same choices as for the basic science subjects i.e. skills lab 101(80%), followed by problem based learning 89(70%) and interactive lectures 79 (62%) as is evident in table-III.

Table-II. Preferred teaching methods for basic science subjects

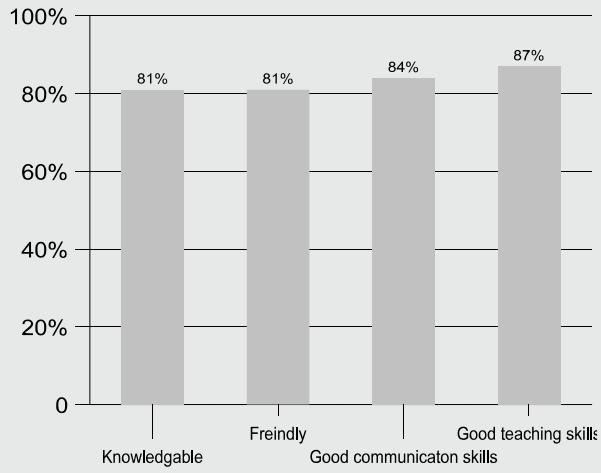
Teaching Method	Strongly disagree 1	Moderately disagree 2	Slightly disagree 3	Neutral 4	Strongly agree 5	Moderatel y agree 6	Slightly agree 7
One way lecture	51 (40%)	10 (8%)	12 (9%)	15 (12%)	18 (14%)	8 (6%)	13 (10%)
Interactive lecture	5 (4%)	2(2%)	6 (5%)	8(6%)	11(9%)	30(24%)	65(51%)
Small group	7 (6%)	3 (2%)	6 (5%)	5 (4%)	12 (10%)	32 (25%)	62 (49%)
Problem based learning	5 (4%)	4 (3%)	4 (3%)	7 (5%)	11 (9%)	26 (21%)	70 (55%)
Guest speaker	15 (12%)	4 (3%)	8 (6%)	30 (24%)	25 (20%)	25 (20%)	20 (16%)
Student presentations	13 (10%)	9 (7%)	6 (5%)	28 (22%)	21 (17%)	23 (18%)	27 (21%)
Laboratory work	7 (6%)	7 (6%)	7 (6%)	17 (13%)	23 (18%)	21 (16%)	45 (35%)
Research project	8 (6%)	6 (5%)	5 (4%)	17 (13%)	16 (13%)	26 (20%)	49 (39%)
Independent Study	11 (9%)	6 (5%)	10 (8%)	23(18%)	21 (16%)	12(9%)	44(35%)
Group discussion	7 (5%)	2 (2%)	6 (5%)	19 (15%)	20 (16%)	29 (23%)	44 (35%)
Demonstration	8 (6%)	4(3%)	5 (4%)	15 (12%)	21 (16%)	26 (20%)	48 (38%)
Skills lab	4 (3%)	1(1%)	2 (2%)	4 (3%)	8 (6%)	20 (16%)	88 (69%)

Table-III Preferred teaching methods for clinical science subjects

Teaching Method	Strongly disagree 1	Moderately disagree 2	Slightly disagree 3	Neutral 4	Strongly agree 5	Moderatel y agree 6	Slightly agree 7
One way lecture	58 (46%)	13 (10%)	7 (5%)	12 (9%)	15 (12%)	10 (8%)	12 (9%)
Interactive lecture	4 (3%)	1(1%)	4 (3%)	6(5%)	9(7%)	24(19%)	79(62%)
Small group	4 (3%)	3 (2%)	2 (2%)	6 (5%)	13 (10%)	27 (21%)	72 (57%)
Problem based learning	4 (3%)	1 (1%)	3 (2%)	9 (7%)	5 (4%)	16 (13%)	89 (70%)
Guest speaker	11 (9%)	3 (2%)	5 (4%)	28 (22%)	28 (22%)	22 (17%)	30 (24%)
Student presentations	8 (6%)	2 (2%)	9 (7%)	22 (17%)	22 (17%)	26 (20%)	38 (30%)
Bed side teaching	8(6%)	1 (1%)	3 (2%)	16 (13%)	10 (8%)	28 (22%)	61 (48%)
Research project	9 (7%)	2 (2%)	4 (3%)	17 (13%)	18 (14%)	22 (17%)	55 (43%)
Independent Study	23 (18%)	6 (5%)	11 (9%)	22(17%)	21 (16%)	19(15%)	25(20%)
Group discussion	7 (5%)	3 (2%)	5 (4%)	5 (4%)	7 (5%)	37 (29%)	63 (50%)
Skills lab	4 (3%)	1(1%)	1 (1%)	3 (2%)	5 (4%)	12 (10%)	101 (80%)

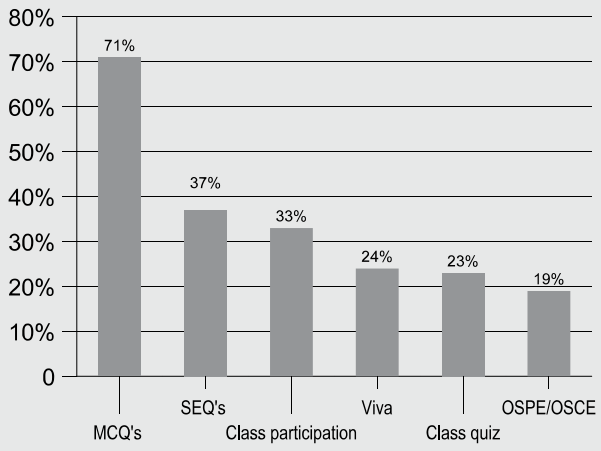
The least preferred teaching method identified was didactic or one-way lecture for both the clinical (46%) and basic (40%) science subjects respectively. Respondents were questioned about the desirable qualities of a good teacher. The popular choices included good teaching skills (87%) and good communication skills (84%) as is shown in Fig-1.

Fig-1. Desirable qualities of a good teacher



The students were asked to identify their preferred assessment technique, which was found to be multiple-choice questions 90(71%) as shown in Figure. 2

Fig-2. Preferred assessment technique



DISCUSSION

The twenty first century brought along a lot of recent innovations, with an increased demand of incorporating these technologies into educational institutions as well. Undergraduate medical education isn't in a complete state of satisfaction, and this doesn't only apply to Pakistani medical colleges, but in fact 67 countries showed concern in a medical education conference in 1988[11].

There has been an evolution in the pattern and style of teaching, with the trend shifting towards interactive learning in comparison to sole lecture based teaching[12].

We asked the students regarding their preferred teaching method for the basic and clinical science subjects. It was seen that the popular teaching method for the basic science subjects included skills lab (69%), problem based learning (55%) followed by interactive lectures (51%). Similar pattern was observed for the clinical science subjects i.e. skills lab (80%), problem based learning (70%), followed by interactive lectures (62%). Literature review shows a variety of preferred teaching methods identified by medical students. According to a study conducted among medical students in India animation based lectures was identified as the popular teaching style for the basic science subject[13]. However, the quiz program at the Government Medical College, Chandigarh was the most famous teaching method as it fostered active learning through integrative reasoning[14]. Interestingly, a study conducted by Yawar et al showed 67% of the students wanted the teaching methodology to include a combination of problem based learning and traditional lectures[2]. The radiology students wanted to be taught in the Socratic style in small groups according to Zou et al[15].

Problem based learning (PBL) is a word that spread in the academic industry with the current shifts in media and technology. PBL was a program of learning that originated at McMaster University in Canada. It is based on the principles of self learning, facilitated by the teachers[16]. Students are posed problems and they find solutions to those problems through self directed study before being facilitated by the teacher and the group to supplement and further clarify their ideas. Problem based learning forces the student to be inquisitive and the facilitator acts to keep the student focused on the

topic at hand[17]. Where PBL has many advocates it also brings alongside a set of issues and problems that discourage its use. Problem based learning is popular among the basic sciences however; its application in clinical sciences is limited[18].

Another recent approach in terms of teaching methodologies is skills lab. While problem based learning facilitates basic science learning, skill labs smooth the transition into clinical work[18,19]. These labs are designed to give students hands on clinical experience on non human models. In basic science subjects students are taught basic laboratory test skills in physiology and biochemistry; however in clinical sciences students are given the chance to enhance and refine their hands on clinical skills through the use of models. This prepares the student for future live patients and makes the change from basic to clinical sciences smoother[19].

The least preferred teaching method identified by the students for both the basic science subjects (40%) and clinical science subjects (46%) included the didactic form of lecturing. Similar results were highlighted by Fischer et al in their study conducted among third year medical students in New Jersey[20]. Private study, formal lecture, role play and student presentations were identified as the least preferred modes of teaching by a study conducted on medical students at the University of West Indies[21].

It is seen that the most commonly used traditional teaching method is the didactic lecture[18]. The conventional or traditional approach of teaching is one where the teacher is the medium that provides the student with information and the student is one that accepts all that the teacher presents. Nevertheless current standards of education and the demand of the workforce, no longer suffice from the long established osmosis of information between the student and the teacher. Students now present as active participants of the learning process[22]. Many comparisons have been evaluated and studied between the didactic or traditional approach to the contemporary problem based learning. Results consistently show a better understanding for those applying principles of problem based learning rather than the didactic approach[23,24].

Students were asked in regards to the qualities that comprise a good teacher, and they preferred teaching skills (87%), followed by communication skills (84%) to be the greatest assets of a good teacher. The Caribbean students identified teaching skills, having knowledge and being approachable as desirable qualities of a good teacher[21].

In the medical field students end up being colleagues of their teachers, and students increasingly want to be dealt in a manner that is more collaborative than classified. Knowledge is pertinent to teaching the student, and without the teacher having sufficient grasp of their field it is challenging for the student to learn completely on their own[23].

The issue that concerns student the most is their grades. And effective assessment proves helpful in attaining good grades. Multiple choice questions, is an effective means of assessment because not only do they assess the knowledge of the student but they also prove to be helpful in handling the process of elimination[22]. Diagnosis is essentially nothing but a process of elimination. Multiple choice questions force future doctors into differentially diagnosing the answer and prepares them for management of cases in the clinical setting. For this reason a great population of student (71%) chose to be tested using multiple choice questions. A study conducted in Ludhiana by Lata et al, identified a grand stage held at the end of each system as the popular assessment method for the subject of physiology[10]. Whereas, some students prefer a 50-50 balance between their exam and course work as the ideal assessment technique[21].

CONCLUSIONS

The study concludes that the most preferred modes of teaching were skills lab, problem based learning and interactive lectures, whereas the least preferred method of teaching was didactic lectures. Teaching and communication skills were identified as popular qualities for a good teacher. Multiple choice questions were selected as the popular assessment technique. It is

recommended that future studies need to be conducted on a larger sample. The relevant authorities are requested to keep students' recommendations in mind when medical teaching curriculum is being developed.

LIMITATIONS

The study had a few limitations. Results were compiled from only two classes and from only one medical college, so the generalizability is limited. Further studies are recommended in order to improve the generalizability of the results. Studies can be conducted on different classes from the five years of medical college. The results compiled can be compared against each other and from other colleges. Trends should be spotted regarding the shift in preferences as students move from basic sciences to clinical sciences.

REFERENCES

1. Freyer A, Simpson J, Fragstein MV. **Comparison of preferred learning methods between medical students and postgraduate medical staff [Internet]. [Updated 2006].** Available from http://www.nottingham.ac.uk/pesl/browse/faculty/medhs/comparis708/

2. Yawar A, Shah SS. **Faculty and Students Survey: "Methods of Imparting Knowledge suitable for undergraduate Medical students."** Pakistan J. Med. Res 2003; 42(3):116-9.

3. Veerapen K, McAleer S. **Students' perception of the learning environment in a distributed medical programme.** Med Educ Online 2010;15:10.3402/meo.v15i0.5168.

4. Sajjad S. **Effective teaching methods at higher education level. Department of Special Education.** University of Karachi.

5. Percac S, McArdle PJ. **Anatomy teaching: students' perceptions.** Surg Radiol Anat 1997;19: 315-7.

6. MacManaway L. **Teaching methods in higher education – innovation and research.** Universities Quarterly 1970; 24: 321-9.

7. Gibbs G, Habeshaw S, Habeshaw T. **53 Interesting Things To Do in Your Lectures.** Biochemical Educatio 2010; 17:105.

8. Folley D, Wilkinson S, Thomson S. **Rebooting the student's attention span by using Personal Response Systems.** Assessment, Teaching and Learning Journal 2009; 6: 21-5.

9. Yanamandram V, Noble G. **Student Experiences and Perceptions of Team-Teaching in a Large Undergraduate Class.** JUTLP 2006; 3(1). Available at:http://ro.uow.edu.au/jutlp/vol3/iss1/6

10. Lata H, Walia L, Gupta V. **Student feedback on teaching and evaluation methodology in physiology.** SEAJME 2008; 2:31-7.

11. Dearing R. **Summary report: the National Committee of Inquiry into Higher Education.** Norwich: HMSO, 1997.

12. Johnson HD, Dasgupta N. **Traditional versus non-traditional teaching: Perspectives of students in introductory statistics classes.** J of Stat Educ 2005;13(2).[Online: www.amstat.org/publications/jse/v13n2/johnson.html]

13. Singh S, Singh S, Gautam S. **Teaching styles and approaches: medical student's perceptions of animation-based lectures as pedagogical innovation.** Pak J Physiol 2009; 5(1): 16-9.

14. Nageswari KS, Malhotra AS, Kapoor N, Kaur G. **Pedagogical effectiveness of innovative teaching methods initiated at the Department of Physiology, Government Medical College, Chandigarh.** Adv Physiol Edu 2004;28: 51-8.

15. Zou L, King A, Soman S, Lischuk A, Schneider B, Waldor D et al. **Medical Students' Preferences in Radiology Education A Comparison Between the Socratic and Didactic Methods Utilizing PowerPoint Features in Radiology Education.** Acad Radiol 2011; 18: 253-6. Epub 2010 Nov 13

16. Woodward CA, Ferrier BM. **The content of the medical curriculum at McMaster University: graduates' evaluation of their preparation for postgraduate training.** Med Educ 1983;17:54-60.

17. Wood DF. **ABC of learning and teaching in medicine: problem based learning.** BMJ 2002;326: 328-30.

18. Vernon DTA, Blake RL. **Does problem-based learning work? A meta-analysis of evaluate research.** Acad Med 1993;68:550-63.

19. Dent JA. **Current trends and future implications in the developing role of clinical skills centres.** Med Teacher 2001;23:483–9.

20. Fischer RL, Jacobs SL, Herbert WN. **Small-group discussion versus lecture format for third-year students in obstetrics and gynecology.** Obstet Gynecol 2004;104:349-53.

21. Williams S, Sa B, Nunes P, Stevenson K. **Communicating with first year medical students to improve Communication Skills teaching in The University of the West Indies.** International Journal of Medical Education 2010; 1:5-9.

22. Bloom SW. **The medical school as a social organisation: the source of resistance to change.** Med Educ 1989; 23: 228-41.

23. Lerner S, Magrane D, Friedman E. **Teaching teamwork in medical education.** Mt Sinai J Med 2009; 76(4):318-29.

24. Pernandez P, Manuel P, Wasum A. **Medical teaching beyond graduation: undergraduate study groups.** Sao Paulo Med. J. [online]. 2010; 128 (5), 257-258.

Article received on: 21/09/2011 Accepted for Publication: 04/07/2012 Received after proof reading: 08/10/2012

Correspondence Address:
Dr. Fatima Mukhtar
7-Aziz Bhatti Road
Lahore, Cantt.
fatimamukhtar@doctor.com

Article Citation:
Mukhtar F, Hashmi N, Rauf MA, Anzar A, Butt KI, Ahmed M, Abbas K. Teaching methodologies; what is the students' perspective? Professional Med J Oct 2012;19(5):597-603.