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PERCEPTIONS AND PREFERENCE OF CONTEMPORARY TEACHING METHODS AMONG UNIVERSITY STUDENTS OF PAKISTAN- A CROSS-SECTIONAL SURVEY

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ABSTRACT:

Objective: To determine difference in the perceptions and preferences of medical and non-medical students about utilization of different teaching methods in order to recommend ways for their optimal utilization.
Methods: Cross sectional survey was conducted on a convenient sample of 1173 undergraduate students belonging to medical and non-medical colleges from May 2011 to September 2011. The total response rate was 90.23%.
Results: Over all 30.2% of the students chose PBL to be a reliable mode of teaching and 32.4 % believed that it provides a better learning experience. Majority of the students (34.8%, 43.5 % and 40.8%) preferred case studies over PBL, Lectures, role playing and video tapes and believed that case studies develops the ability to understand the topic better and it is an interesting and interactive teaching method respectively. Majority of the medical students chose PBL whereas the non-medical students preferred case studies to be the preferred teaching method.
Conclusion: Students have chosen PBL and case studies as the preferred teaching method and have preferred the integration of different teaching methods for better understanding.

Keywords: Teaching methods, Lectures, role playing, videotapes, problem based learning, case studies.

INTRODUCTION:

There has been a growing interest over the past decade for a paradigm shift from teacher-centered mode of delivery to student-centered. It has been emphasized that such a shift can help for providing a contextually meaningful framework so that core knowledge is delivered with sound concepts of the subject [1]. A number of teaching methods are employed at the undergraduate level to appeal to students with different learning styles. It includes didactic lectures, role playing, case studies, demonstrations through videotapes, problem based learning (PBL) and several others to address specific learning styles of students by providing them contextual opportunities [2].
All the different learning strategies are designed keeping in mind the preference of learners' and to attract their active participation; an adopted example is of models and video demonstrations for the visual learners, active discussion for auditory learners, models and role-playing for kinesthetic and tactile learners [3]. Presentation of the material in a variety of ways and format also attracts the active participation of the students, which enhance their understanding and learning of the subject [4, 5]. Nowadays, availability of several teaching aids like White Board, Overhead Projector, Multimedia, PowerPoint, Computer Assisted (CD ROMs) and Web based learning have facilitated and assisted the academics in their teaching.

The studies done in west to show effectiveness of various learning strategies has shown little documentary evidence, which appears to be the hindrance in adopting these strategies [3]. The faculty members must have thorough knowledge of the subject matter along with awareness of the learners' characteristics and learning styles preferences to be effective [6]. Most of the faculty members have an up to date knowledge of their subject of specialization. However, understanding the differences in learning style preferences of the learner is very important but an underutilized approach to improve understanding of the learners'.

Learning can be through cognitive, affective and psychomotor domains. Students have shown to grasp new knowledge by the help of visual, auditory and tactile sensory modalities [7]. The mode of delivery and transfer of information in a lecture appeals particularly to those with strong verbal/linguistic skills. Role playing, case studies and PBL tend to accommodate those with strong visual/spatial intelligence also [8]. Role playing and case studies can be interactive or non-interactive depending upon the size of the group as compared to PBL which is usually interactive and involves small group discussions. All these teaching tools have some advantages and disadvantages.

The study was designed to determine the perception and preferences of the undergraduate students' about the use of contemporary teaching methods in a class room so that they can be utilized in an effective and efficient manner for comprehensive delivery of the content and to develop better understanding of the subject matter.

METHODS AND MATERIAL

A comparative cross sectional survey was conducted from May 2011 to September 2011 at Engineering and Medical Universities of Karachi, Pakistan on a convenient sample of 1100 undergraduate students belonging to different specialties like medicine, pharmacy, nursing, engineering and management. The students were broadly divided into two categories; medical and non-medical. Out of 1300 questionnaires administered, 1191 were returned and 18 were incomplete and therefore, were not included in the analysis. The total response rate was 90.23%. The students were asked to fill a questionnaire during their leisure time after explaining the purpose of the study and taking informed consent.

The study questionnaire was designed carefully after literature review and some of the questions were adapted from similar previous studies [9]. It was pre-tested on a sample of 25 undergraduate students belonging to both medical and non medical fields. Any ambiguities in the questions or responses were removed before its implementation. The questionnaire had two sections.

TABLE 1:

The perception and preferences of the undergraduate students' towards different teaching methods

	Which method is reliable type					
	Lectures* (%)	**Role playing§ (%)**	**Case studies£ (%)**	**Video tapes — (%)**	**PBL x (%)**	***p* valueÂ**
Non Medical	25 (4.1)	120 (19.6)	272 (44.4)	81 (13.2)	114 (18.6)	<0.001
Medical	46 (8.2)	112 (20.0)	54 (9.6)	109 (19.4)	240 (42.8)	
Total	71 (6.1)	232 (19.8)	326 (27.8)	190 (16.2)	354 (30.2)	
	Develops the ability to understand the topic better					
Non Medical	85 (13.9)	98 (16.0)	323 (52.8)	25 (4.1)	81 (13.2)	<0.001
Medical	76 (13.5)	72 (12.8)	187 (33.3)	32 (5.7)	194 (34.6)	
Total	161 (13.7)	170 (14.5)	510 (43.5)	57 (4.9)	275 (23.4)	
		Provides better learning experience				
Non Medical	116 (19.0)	75 (12.3)	239 (39.1)	57 (9.3)	125 (20.4)	<0.001
Medical	73 (13.0)	75 (13.4)	100 (17.8)	58 (10.3)	255 (45.5)	
Total	189 (16.1)	150 (12.8)	339 (28.9)	115 (9.8)	380 (32.4)	
		I prefer to...				
Non Medical	80 (13.1)	92 (15.0)	231 (37.7)	66 (10.8)	143 (23.4)	<0.001
Medical	67 (11.9)	68 (12.1)	177 (31.6)	45 (8.0)	204 (36.4)	
Total	147 (12.5)	160 (13.6)	408 (34.8)	111 (9.5)	347 (29.6)	
	More interesting and interactive teaching method					
Non Medical	92 (15.0)	86 (14.1)	297 (48.5)	50 (8.2)	87 (14.2)	<0.001
Medical	85 (15.2)	66 (11.8)	181 (32.3)	33 (5.9)	196 (34.9)	
Total	177 (15.1)	152 (13.0)	478 (40.8)	83 (7.1)	283 (24.1)	

* Lectures, § Role Playing, £ Case studies, — Videotapes, x Problem based Learning
Â p <0.05 = significant, p<0.01 = vey significant, p<0.001 = highly significant

The first section assessed the age and class profile of the students while the second one assessed the preference of the students among different teaching methods in terms of developing interest and interaction, increasing understandability and provision of a better learning experience.

Statistical Package for the Social Sciences (SPSS version 17.0) was used to analyze the data using descriptive statistics to evaluate the frequency distribution and percentages. The mean significant differences and *p* values were calculated using the Mann-Whitney test.

The study was approved from the principals of all the universities involved in the study. An informed consent was obtained from every student and confidentiality was assured.

RESULTS:

Of the total students (N=1173) that responded, 635 (54.1%) were males and 538 (45.9%) were females. These students were classified into two groups; medical or non-medical on the basis of the discipline they are seeking their higher education in. 612 (52.2%) students were studying medical related fields while 561 (47.8%) students were studying engineering or management sciences. The mean age of the students who participated in the study was 21.30 ± 1.92 years. No significant difference was observed among the students belonging to different specialties.

Majority (42.8%) of the medical students chose PBL as a reliable teaching method whereas around (44.4%) of the non-medical students chose case studies to be the reliable teaching method. Very little difference was observed in PBL (34.6%) and case studies (33.3%) when development of ability to understand the topic better was asked from medical students while non-medical students supported case studies (52.8%). Similar trend was seen when asked about the method that provides the better learning experience with medical students considering PBL (45.5%) whereas non-medical students favored case studies (39.1%). The medical students preferred PBL (36.4%) while non-medical students preferred case studies (37.7%). The similar observation was observed with respect to the teaching method which is more interesting and interactive as medical students chose PBL (34.9%) and non-medical students (48.5%) chose case studies. (Table 1)

Table-2 shows generalized attitude of the students towards different teaching aids. 75.2% non-medical and 82.9% medical students preferred teaching using combination of PowerPoint presentations with the AVA or WB. 82.3% non-medical students and 85.5% medical students did not feel any difficulty in switching from one mode of teaching to other during the delivery of lecture. 86.1% non-medical and 83.9% medical students did not feel any difficulty when two or more teaching aids were used simultaneously. Majority of non-medical (82.3%) and medical (84.5%) students favored student centered approach in understanding the concepts. 89% non-medical students and 83.3% medical students agreed that lectures by foreign scholars can be used a teaching tool in future. 71.1% non-medical and 78.5% medical students wanted a handout to be provided after a lecture and 56% non-medical and 70.6% medical students considered that provision of the handouts reduces the need of getting detailed knowledge from the textbook.

DISCUSSION:

Although students need to memorize a number of facts but developing concepts is fundamental to the understanding of medical sciences. Students develop concepts and acquire facts through lectures and textbooks. Several different teaching methodologies can be employed; each has its advantages and disadvantages. [10] Lecture is used to deliver information to larger masses but it is usually a one-way communication and involves minimal engagement of the students [11]. It takes active involvement of the student with the subject matter to develop understanding that is mostly not achieved in the lecture halls [12].

Several studies have shown that students consider video based demonstrations as an effective learning tool [13, 14] Video conferencing and video streaming have proved its effectiveness in delivering lectures to off campus students. Those who have missed their lectures can also stream the video online to get maximum benefit from this technology. Similar results were found in our study. 89% students agreed that online lectures through video conferencing could play a promising role in higher education. The modern teaching is shifting from teacher centered to students centered education, which has led to a shift in the role of the teachers as well. The primary objective of the teachers' is to involve students in an active learning process [15]. The role of Problem Based Learning in actively involving the students in learning process is identified in several studies [16, 17]. Problem

TABLE-2:

Generalized attitude of the students towards different teaching aids.

Questions	Non medical n (%)	Medicaln (%)
Integration of multimedia/PowerPoint presentations teaching with AVA/ WB in a lecture	882 (75.2)	973 (82.9)
Difficulties in switching from one visual aid to other in short duration	203 (17.3)	171 (14.5)
Difficulties in using two or more methods simultaneously by the teacher	163 (13.9)	189 (16.1)
Student-centered interactive sessions are more helpful in developing the concepts	965 (82.3)	992 (84.5)
Lectures by local/foreign scholars by video conferencing as a future teaching method in universities	1044 (89.0)	978 (83.3)
Handouts of topic/lecture be provided	834 (71.1)	921 (78.5)
Provision of the handouts reducing the need of getting detailed knowledge from book	657 (56.0)	827 (70.5)

Based Learning (PBL) has largely replaced formal teaching method and has become a popular approach to learning in medical curricula worldwide. It is an active learning process, which uses hypothetical medical case scenarios as the basis for learning. Discussion helps students identify the learning issues necessary to understand the case scenarios and leads them to seek information through individual, self-directed study [12]. Another study conducted in India attempted using the PBL along with the didactic lectures and proved its effectiveness in creating motivation in students to do self directed learning. [18]

The difference in approach of the medical and non-medical students which is clearly evident in our study can be explained by the nature of the subjects that they have to deal with during their studies. Both case studies and PBL involves active participation of the learners by involving them. Medical practice is essentially a problem-solving activity whether at individual, family, or community levels. [19] PBL was opted by the majority of medical students as it emanates from a clinically based problem. It encourages independent learning and deeper understanding of a particular topic and integration of other related fields in an attempt to correlate the findings to establish a proper diagnosis and then treatment. Non-medical students, on the other hand, preferred case studies as it gives them an opportunity to build upon their knowledge on the prior experiences of the experts in the field. These experiences will help them in decision making if any of such situation appears again like in management sciences or in business studies. Case studies are also useful for medical students but as medicine is an ever changing science and the presentation of the patients can be very different, these case studies does add up to the knowledge but doesn't help in the development of problem-solving skills

Studies show that students have achieved higher scores in undergraduate courses when teaching style was designed according to their learning style preferences [20]. Rochford [21] found significantly higher achievement when instruction material was prepared in response to learning style at an urban community college. Miller [22] observed a significant improvement in examination scores as well as in students' attitude towards learning when information delivery style matched students' learning styles. Our findings do not correlate with the findings of Slater and Lujan [23] who found gender specific learning style preferences among undergraduate students. Our results showed that there was no significant difference in learning style preference of male and female students.

Conclusion:

The teaching paradigm has shifted from traditional teacher centered mode of delivery to student centered delivery of the contents. Students retain minimal information obtained from traditional didactic teaching and have difficulty transferring knowledge to new experiences. Both the methods chosen by the students help them identify, analyze, and resolve learning issues using knowledge from previous experiences and learning, not relying solely on recall. Faculty members will also be able to use this information to develop better understanding of the subject matter in students by taking in to consideration their preferred method of teaching. It will also facilitate them in developing interest and active participation of students in the classroom.

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