

Attitude of Medical and Dental First Year Students Towards Teaching Methods in a Medical College of Northern India.

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ABSTRACT

Background: Teaching in most Asian countries is still dominated by teacher-centered classrooms in which students passively receive information from the teacher. Studies have shown that students' inactivity in traditional teacher-centered classes makes them bored that consequently decrease their concentration and learning. To counter these problems active learning methods are being promoted to enhance their interest in studying. This present study was done to explore effective teaching system from a student's perspective. The aim of the study was to examine the attitude of medical and dental first year students towards teaching methods.

Materials and Methods: The study was undertaken at on 150 Medical and Dental first year students. The study was conducted using general questionnaires along with feedback form to know their opinion about different teaching methodology.

Results: A 94.67% of the students were unsatisfied with traditional Lecture teaching. 89.33% favoured combination of traditional lectures and active learning techniques, 74.67% students find active learning methods to be interesting, 77.33% found them as attention seekers, 89.33% are motivated for in-depth study and 85.33% students are motivated for independents learning. 100% students agreed that active learning methods provide opportunities of student interaction while 86.67% students are happy with the teacher-student interaction it provides. Audio-visual aids are the most favoured (94.67%) and test questions are most criticized active teaching method.

Conclusion: Our study disclosed that the majority of student's positively believe in using different active learning techniques for classroom activities.

Keywords: Active learning, Dental, Medical, Passive learning, Teaching

INTRODUCTION

Teaching in most Asian countries is still dominated by teacher-centered classrooms [1] in which students passively receive information from the teacher and internalize it through memorization. Concepts such as independent learning, flexibility in learning, critical thinking and problem solving are least recognized [2].

Passive learning provides a convenient mode to impart knowledge to large classes of students. Also, professors can present a large amount of material in a relatively brief amount of time. But with this method students fail to retain as much material taught after the class has been completed. Also reports have shown that students' inactivity in traditional teacher-centered classes would make them bored and exhausted that consequently would decrease their concentration and learning and finally would result in their absence from the classroom [3].

To counter these problems and because of increasing competitive demands in the academic community, educators now strive to provide the most productive classroom experience for their students. According to Gorham [4] the behaviours that promote student learning are Appropriate use of humour, Praising student performance, Engaging students outside of the classroom, Appropriate level of self-disclosure, Encouraging students to talk, Asking questions about student viewpoints or feelings, Following up on topics raised by students and Referring to "our" class and what "we" are doing. To achieve these objectives, nowadays a plethora of techniques are advocated typically involving mid-lecture interesting activities. These activities that focus the responsibility of learning on learners can be referred with an umbrella term Active learning. This approach; first described in detail by the English scholar RW Revans [5] and popularized by Bonwell & Eison [6] encompasses various practices, such as pausing in lectures for allowing students to make their notes, facilitating small-group discussions within the larger class, giving short writing exercises, incorporating quizzes,

taking field trips, and using debates and games. The aim of active learning methods is to engage students in higher-order thinking tasks as analysis, synthesis, and evaluation [7]. Active learning engages students in two aspects – doing things and thinking about the things they are doing [6].

The purpose of the study was to examine the attitude of medical and dental 1st year students of Medical College in Northern India towards teaching methods. This study was in the context of exploring effective teaching system from a student's perspective.

MATERIALS AND METHODS

The study was undertaken on 150 medical and dental first year students. We conducted our study using general questionnaires [Table/Fig-1-3]. Questionnaires have the advantage of reaching a considerable number of participants in a short period of time. Data collected in this way can be easily and quickly accumulated. There were three tables in the questionnaire. [Table/Fig-1] tested the opinion of the participants about their preference of the teaching method. [Table/Fig-2] tells us about their opinion and perceptions about the traditional and active learning methods. [Table/Fig-3] measured how much they agreed/disagreed on certain teaching methods. Before the questionnaires were distributed to the participants, the questionnaires were assessed by other faculty members that enabled an improved version of the whole questionnaire. Then, the participants were informed of what the investigation was about and were told that the responses would be anonymous. They were also told that this test was only to get their ideas and perspectives for educational research. After obtaining their consent, the questionnaires were distributed to them. The students were also given a Feedback form to know their opinion regarding preference and acceptance on different teaching methodology. Later, that was also assessed.

Question	Students' response (%)	
	Positive	Negative
Satisfied with traditional Lecture method teaching during the entire class period		
Want Combination of traditional lecture plus active learning methods		

[Table/Fig-1]: Inclination of students towards the teaching method (Sample Questionnaire)

Questions	Traditional lecture method	Active learning methods
Interesting		
Attention Seeker		
Motivator for in-depth study		
Directs Self-learning		
Learn from fellow students		
Teacher Interaction		

[Table/Fig-2]: Response of students to various aspects of teaching methods (Sample Questionnaire)

Question	Students' response (%)	
	Positive	Negative
Test questions to summarize lecture		
Short writing activity		
Class discussion		
Individual student presentations		
Audio-visual aids during the class period		
Tutorials		
Using humor during classroom teaching		

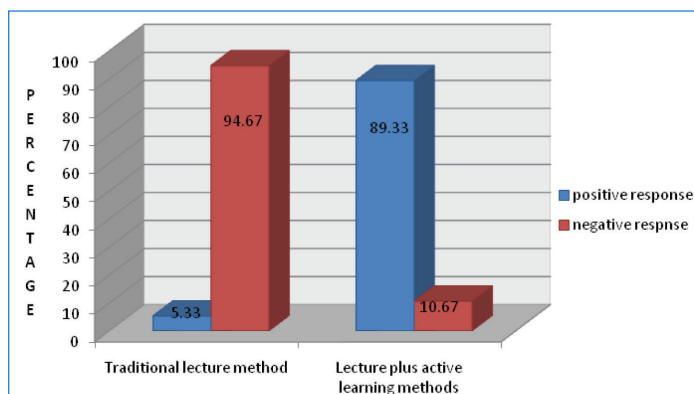
[Table/Fig-3]: Opinion of students about different active teaching methods (Sample Questionnaire)

RESULTS

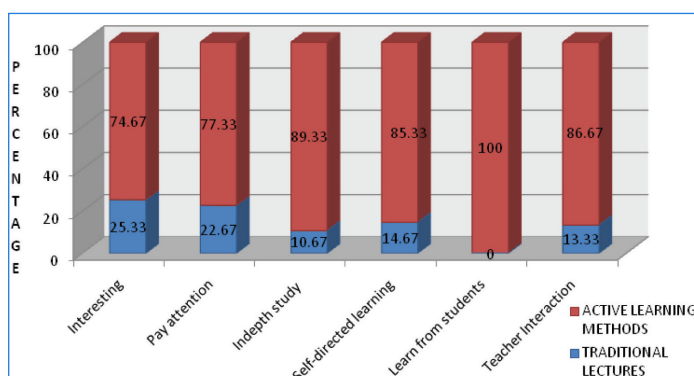
This is simple observational study. The findings from individual questionnaire were drawn together and the results were analysed to find out students' acceptance and preference of the various teaching methodologies. Results obtained are depicted in [Table/Fig-4-6].

DISCUSSION

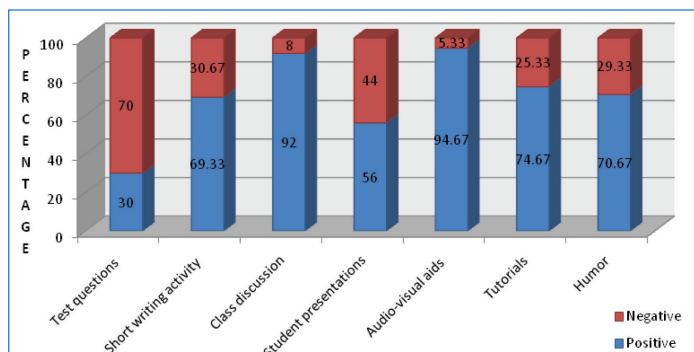
Traditional Lecture vs. combination of lecture and active learning methods: A large majority n=142(94.67%) of the students as shown in [Table/Fig-4] were unsatisfied with the traditional lecture teaching and felt that it should be replaced by new teaching methods that make the process of learning more interesting. Lecture method, probably the oldest instructional format, is still the most common form of instruction [8]. Although engaging, but this method encourages passivity [9] with excessive amounts of teacher talk and lack of interaction [10]. The majority of college students are active learners requiring learning experiences that engage their senses [11]. This was seen in our study also as 89.33% students (n=134) [Table/Fig-4] expressed that their traditional lectures should be augmented with active learning techniques. Active learning creates an interactive classroom for all students and provides significant practical and theoretical advantages over passive learning. Problem-solving exercises, analysis of case reports, student presentations and students working cooperatively in groups are recommended active learning activities for teaching in medical colleges [12]. However, a small percentage of students n=16(10.66%) resisted the non-lecturing approaches expressing that active learning alternatives provide a sharp contrast to the very familiar passive listening role



[Table/Fig-4]: Bar diagram showing inclination of students towards the traditional teaching method vs. traditional plus active learning method



[Table/Fig-5]: Bar diagram showing response of students to various aspects of teaching methods



[Table/Fig-6]: Bar diagram showing opinion of students about different active teaching methods

to which they have become accustomed. Some students also expressed that there is no superiority of any teaching method over the other. They believe that for a good teacher any teaching aid is effective and motivational.

Perceptions towards traditional teaching method vs. active learning methods: Students favored active teaching methods over traditional teaching. Analysis show [Table/Fig-5] that n=112 (74.67%) students find active learning methods to be interesting, n=116 (77.33%) found them as attention seekers, n=134 (89.33%) are motivated for in-depth study and n=128 (85.33%) students are motivated for independent learning. n=150 (100%) students agreed that active learning methods provide them opportunities to interact with other students and learn from them while n=130 (86.67%) students are happy with the teacher–student interaction it provides. Student interactions not only help them to evaluate knowledge and understanding of other students about the subject but also enable them to assess their own standing among other students. Thus, get them motivated to study.

Audio-visual aids: Probing about the opinion of students about various active teaching methods revealed that use of Audio-visual aids is the most favored one. n = 142 (94.67%) students [Table/Fig-6] accepted that their use inspired them for in-depth reading of subject. Review of literature [13,14] also supports the use of audio visual aids in medical colleges. These aids provide a three dimensional view of medical diagrams and clinical images that helps the students in perceiving them correctly. The students can be provided with mini-videos that can be viewed on their laptop device, at their own time, and convenience. Clinical simulation videos that contain real life situations with dummies to simulate real condition or videos containing recent and most innovative medical treatment methods can be shown to students to make them clinically stronger. Video-conferencing of selected rare or unique medical-dental clinical cases of other institutes of higher grade can be arranged for the students so that they can expand their knowledge. By doing such video-conferences a student can be exposed to variety of clinical cases being reported in different areas of the world without actually travelling to that place. Although Audio visual aids make teaching learning process effective but it has its own limitations. These aids decrease teacher's autonomy in the class. Trained experts are required for their effective utility. These devices are not so economical that all institutes can afford.

Class discussion is the second most appreciated active learning method n=138 (92%) [Table/Fig-6]. In this method students are asked to pair off and to respond to a question either in turn or as a pair. This method helps the learners to think rationally and analyse the subject matter and also enable them to evaluate their positions among others. Benefits of this method are: it helps students explore a diversity of perspectives, it increases intellectual sharpness, listens to students' voices, develops habits of collaborative learning and helps students develop skills of synthesis and integration [15]. In medical-dental education class discussions are of great value as this method provides opportunities for students to develop communication skills that will benefit them in dealing with both patients and other health care team members throughout their careers.

Tutorials: n = 112 (74.67%) [Table/Fig-6] of our students find the tutorials useful. Tutorial classes for medical students are imparted to develop and test their ideas, clarify material presented in lectures, apply general concepts to the solution of specific problems, define new problems and seek solutions to them, hone problem-solving skills and encourage students in self learning [16]. Students preferred tutorials due to higher expectations of its benefits, such as better retention of information and revision of the topic, preparation for the exam, and guidance as well as direct feedback from an experienced teacher. Interactive tutorials could help in acquiring of clinical problem solving skills in medical and dental students. n = 38 (25.33%) of students [Table/Fig-6] do not find tutorials useful. They revealed that they have to devote more time to studying a particular topic and also students are subjected to some degree of bias since tutors with different level of knowledge, approach and experience conduct the same topics.

Test questions using The "Socratic Method": It is a learning tool used via dialogue in the form of questions and answers and requires the teacher to lead the student to arrive at the answer through his/her own analytical thinking. This method is used to assess diagnostic reasoning in medical-dental students and thus plays a very important part in clinical teaching. The teacher presents a "leading question" probing rationale, evidence, implications, conceptual clarifications etc. to randomly chosen student, and expects the student to integrate and analyze information or data the student knows to reach an answer; if the "chosen" student cannot answer the question, the teacher passes it to another student until the desired answer is received. It is an excellent way to teach medical-dental students the art of arriving at a diagnosis or a differential diagnosis which otherwise is very complex task. n=105 (70%) of the students

criticized [Table/Fig-6] this method based on fact that it singles out students, embarrasses the student who cannot answer and favors intelligent students who can answer any question thrown at them. Students suggested that the teachers should ask volunteers to raise their hands and randomly pick a volunteer student to answer the question. After one student has volunteered an answer to question, another non-volunteer student can be asked to summarize the first student's response. Having students repeat each others' answers to the question will not embarrass the weak students and will foster active participation by all students. Due to the possibility of being asked to repeat classmate's comments, most students will also listen more attentively to each other.

A short written exercise that is often used is the "one minute paper" that was developed by Weaver and Cottrell [17], modified by Wilson [18] and then popularized by Cross & Angelo [19]. In medical education it is a highly effective means of consistent communication with students. In this method, the teacher simply presents a specific question and gives students one or two minutes to respond. Students' responses reveal whether or not they view the material in the way the teacher envisioned. n=104 (69.33%) of the students positively believe in short writing assignments [Table/Fig-6]. They expressed that one minute paper is an effective way of involving all students in class simultaneously ensuring equal participation of each and every student. Also, this method is beneficial for the students who are too shy or fearful to participate orally. Studies have described minute paper as thinking centered assessment tool which is inexpensive, mutually beneficial, formative, easy to use and instant assessment means [20] and the pedagogical innovation that 'swamped all others' [21].

Individual presentations: n = 84 (56%) students considered them as beneficial tools [Table/Fig-6]. In medical and dental education preparation of individual presentations will give students confidence, help them to overcome their nervousness and motivate them to speak before other people without hesitation. Students actively research a recent medical topic and prepare the information to teach the class. By doing so, a student learns his own topic even better. Apart from learning the subject students acquire other skills also like searching internet-based materials, utilizing it effectively; preparing presentations and on-line communication with other students which can help them in their medical careers in the long run. However, n = 66 (44%) of the participants thought that activities are not beneficial for them [Table/Fig-6]. Students expressed that it is hard for them to give presentations as they feel uncomfortable, hesitate and feel nervous when called for presentations. Moreover, in some situations teachers used presentations activities in excess to escape their routine lectures.

Humour: n = 106 (70.67%) students considered humour as the positive approach for learning in a class [Table/Fig-6]. Jokes energize the tired students and refresh them to pay attention to the classroom activities. Also, humour plays a very important role in making students learn how to handle stress and psychological discomfort which are very common in medical and dental fields. Whereas, small percentage n = 44 (29.33%) [Table/Fig-6] considered jokes sometimes distracting and certain jokes of the teacher regarding particular student cause discouragement and poor performance of the student in class.

Although, it is now well-established that active learning provides significant practical and theoretical advantages over passive learning [22,23], teachers /faculty are often seen reluctant to employ these active learning strategies in routine teaching practice. Peek, Winking and Peek [24] state that the traditional lecture technique is preferred by many lecturers because it may be perceived as a strategy for establishing and maintaining order in the class and serves as safety net for teachers who may be unfamiliar with using other methods. Barriers that prevent faculty from using active learning strategies include: Insufficient training and lack of self-confidence in personal

skills and knowledge, fear of failure to cover course content in the time available; pre-class preparation time for devising active learning strategies; large class sizes; lack of materials or equipment needed to support active learning approaches; Active learning strategies involves risks that students will not participate actively and might not learn sufficient course content but studies [25] have shown that fears that those students who had less exposure to lecture would learn less is groundless. Though the classroom use of active learning strategies will always involve some risk, likelihood of success can be maximized by carefully selecting only those active learning strategies that are at a personally comfortable risk level.

CONCLUSION

Our study disclosed that the majority of student's positively believe in using different active learning techniques for classroom activities. The present study provides insights into student's perceptions which were very useful in identifying their expectations or requirements. It can help educators to publish guidelines for teachers and students on applying classroom activities. It is recommended that further studies be undertaken on larger scales to develop more understanding of students' attitudes towards teaching activities in classrooms.

LIMITATION AND EXPANSION OF STUDY

The study was conducted in a single medical college of a developing country India. It can be made more scientifically appealing by including more medical colleges across the Northern region or even the whole country.

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