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## **EVALUATING ANATOMY TEACHING METHODOLOGY AS PER THE PERCIPIENCE OF FIRST YEAR M.B.B.S. STUDENTS – A QUESTIONNAIRE BASED STUDY**

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### **ABSTRACT**

Anatomy being considered as the foundation for medical sciences has always been perceived as a dry and difficult subject. The various terminologies of anatomical language are very difficult to learn for a fresh first year M.B.B.S. student. It's a teacher's responsibility to make the subject interesting and help them to understand the concepts & its clinical correlations. In the present study, students were asked to give their views on learning anatomy with various teaching methodologies. A questionnaire was prepared and student's feedback was taken. Most of the students preferred the use of PowerPoint presentations, visual aids along with the use of chalk and board to simply concepts. They opted small group teaching over diadectic lectures. For the most effective method of evaluation most of the students found stage or part completion exam to be very helpful. On the exam pattern, students wanted all descriptive, short answer type and multiple choice questions to be included.

**Keywords:** *Anatomy, Teaching Methodology, Preference, Learning*

### **INTRODUCTION**

Anatomy has been the core subject of First year medical education curriculum; always recognized as an essential foundation for clinical sciences. It has been the keystone of medical education for years together. It provides a platform of knowledge indispensable to all branches of medicine. However there is a continuing debate on how much to teach, when to teach and how to teach anatomy (Cahill and Dalley, 1990). Lecture has been the most universal form of teaching since prehistoric time. The word lecture dates from 14<sup>th</sup> century and was derived from latin word "lectus", which means 'to read'. Lecture is defined as an oral discourse on a given subject before an audience for purpose of instruction and leaning. This method of teaching is criticized for being unidirectional method of communication that does not involve significant audience participation (Kizlik, 2013). Didactic lectures are still most commonly used methodology of teaching by faculty of medicine. With technological evolution, use of power point presentation has been increased tremendously for classroom teachings in medical education. Use of advanced multimedia technologies and user-friendly version of MS power point presentation has been increased tremendously for classroom teachings in the recent era. Educators are increasingly using these educational technologies and power point has become a presentation staple in medical colleges (Chopra *et al.*, 2014). Overall research indicates that students prefer power point-type presentations to traditional lectures (Cassady, 1998; Susskind, 2005; Gok and Silay, 2008). Supporters claim that power point improves learning, (Lowry, 1999) invokes audience interest (Szabo and Hastings, 2000) and aids explanations of complex illustrations (Apperson *et al.*, 2006). Detractors charge that power point inhibits presenter-audience interaction (Driessnack, 2005) and limits the amount of detail that can be presented (Tufte, 2003). So, there is a lot of debate over advantages and disadvantages of power point. The technology has been proved to be a boon for anatomists because transmission of visual information has a remarkable role in education of gross anatomy (Cottam, 1999; Carmichael and Pawlina, 2000) and

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teachers can now present the subject to their students with more 3-D images, sequence of images and videos and thus improve the educational value. The role of the faculty member in the modern concept of medical education is to facilitate the learning process. It is important to use multiple techniques in order to reach as many different types of learners as possible. For the medical students and the aspiring doctors, the sudden transition from the higher secondary school or the college level to the medical college is rather difficult and stressful, and many students find it difficult to cope. This is more so, because India is a land of diversity and medical students come from different educational and socio economic backgrounds. Majority of the students joining the MBBS course undergo a prior “spoon feeding” type of coaching by their parents and teachers. In the new unfamiliar environment of a medical college they are exposed to a totally new scenario of teaching/learning process. They develop problems like difficulty in studying and understanding of the heavy volumes of the pre-clinical subjects (especially Anatomy), problems related to adjusting and adapting to the new college and hostel life and odour related to the dissection of cadavers. As a result, learning becomes very unpleasant, leading to frustrations, corroding of the morale and self confidence of the students, with consequent poor performance in the first term examination disturbing even their mental equilibrium (Nagar *et al.*, 2012). It is necessary to know the views of the students while revising the curriculum and to know the best teaching methodology which will facilitate the learning process (Bredo, 1999). Through all this discussion, it's the students who can help us to provide a keen and closer look of the learning methods; they find most satisfying. Although many studies have been done on the same issue but we were interested to know the teaching approaches for the first year M.B.B.S. students as per their perception. Hence the objective is to obtain Student's feedback about the teaching and learning methodologies which are used so that that, we can help them to learn better and build strong foundations.

## **MATERIALS AND METHODS**

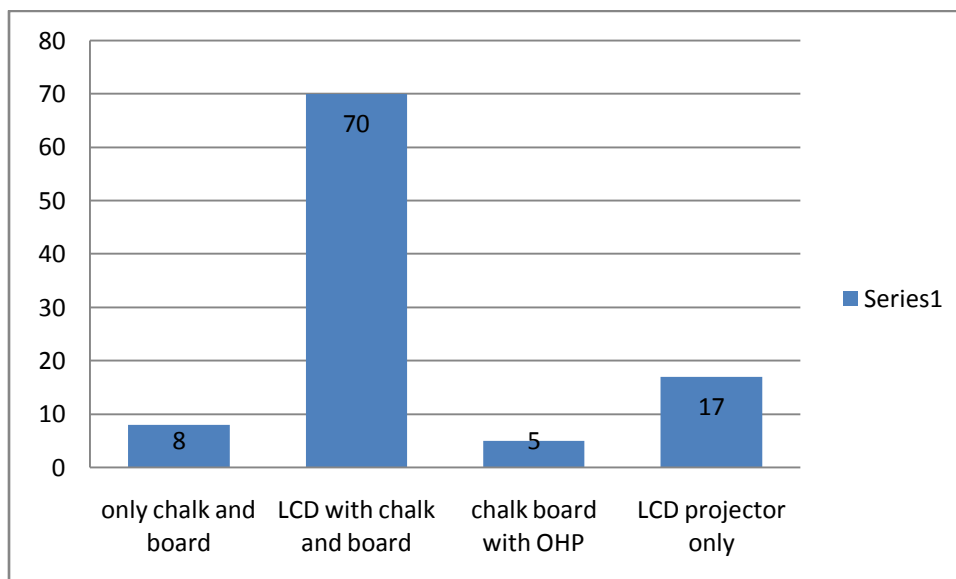
The present study was conducted in department of anatomy, MGM Medical College, Navi Mumbai. Study was approved by Institutional Ethical Committee. The subject population was the entire batch of the 1st Prof MBBS students of the session 2010-11 & 2011-12, just after they had passed first Prof. examinations. These students had been exposed to one year of Anatomy classes and so, were in the best position to judge the teaching practices of the institution. A questionnaire comprising of points relating to the present anatomy curriculum, teaching methodology and assessment techniques at MGM Medical College was provided to all the students of both batches. It included preference for teaching aids, teaching methodology in theory as well as practical classes, teaching methodology for histology and embryology classes, evaluation & examination pattern. Students were asked tick the option which they considered was the best. The students were directed to fill up the questionnaire within a stipulated time, independently and in an unbiased manner, without mentioning their names or roll numbers. They were informed that the information furnished by them is for the research and evaluation purpose only and will be kept confidential. The completed response sheets were collected and the data which was collected was analyzed with the help of the SPSS software, version 12.

## **RESULTS AND DISCUSSION**

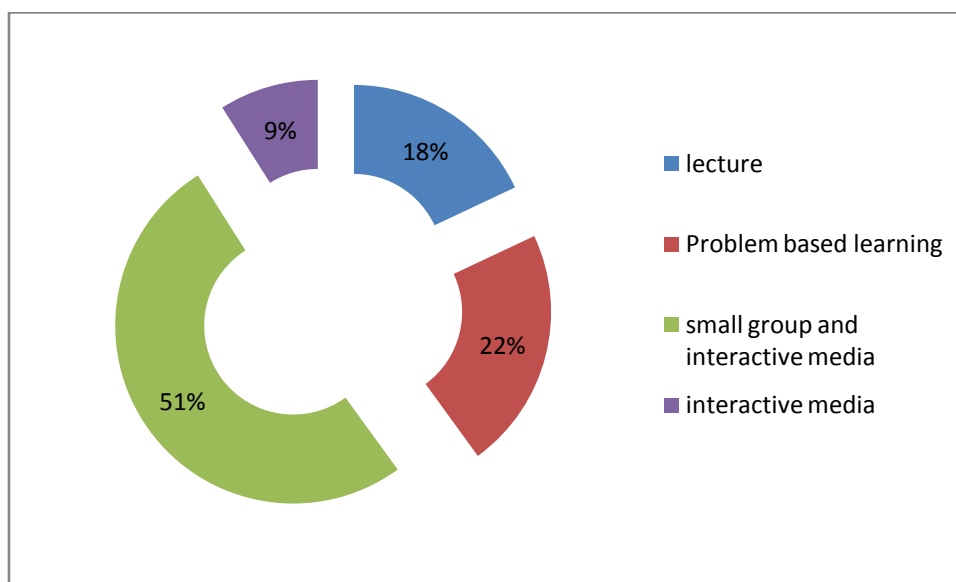
As a result of this questionnaire based study 72.8% students informed that the black board was hard to see from the last bench in the lecture theatre while 100% were satisfied with projector's visibility. 58% students said that the teacher was audible from the last bench in the lecture theatre. In response to the usage of teaching aids 70 % students preferred LCD with chalk and board while only 8% opted for traditional chalk and board methodology. Overhead projectors and transparency sheets in association with boards and chalk was preferred by only 5% of the students, Only LCD projector teaching was preferred by almost 17% of the students (Figure 1). In terms of teaching methodology for theory classes 51% of students wanted to study in small groups along with usage of interactive media while 22% selected problem based learning. Only 18 % were in favor of traditional lecture based classes and 9% for interactive media (Figure 2). Students often find it difficult to recollect theory classes while performing

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dissection hall. During our study 52% students wanted to learn dissection with the help of Video and images by LCD projector while 37% favored chalk and board in dissection hall. Only 11% opted for usage of models and other teaching aids during dissection while no one preferred for only dissection hall (Figure 3). Studying embryology and Histology has always been a field of concern in terms of understanding the concepts and exam performance. We revised a question to solve student's problems in this context.



**Figure 1: Bar diagram showing student's feedback on usage of teaching aids**

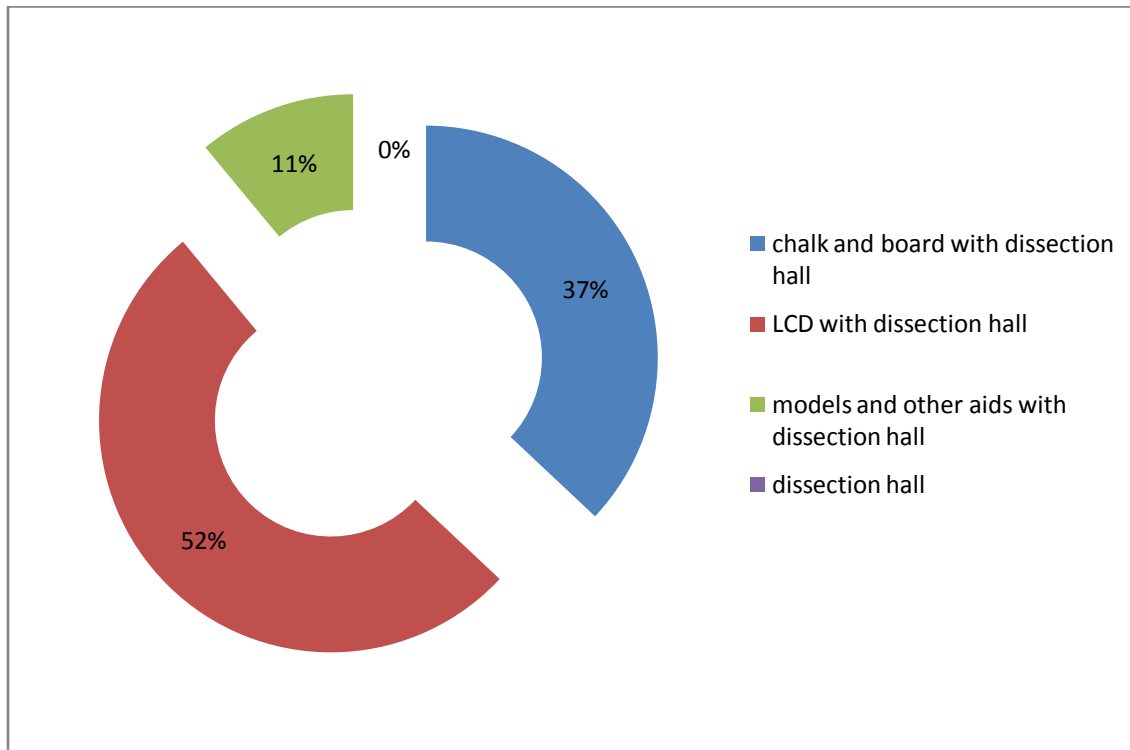


**Figure 2: Pie chart showing mode of preference for theory classes**

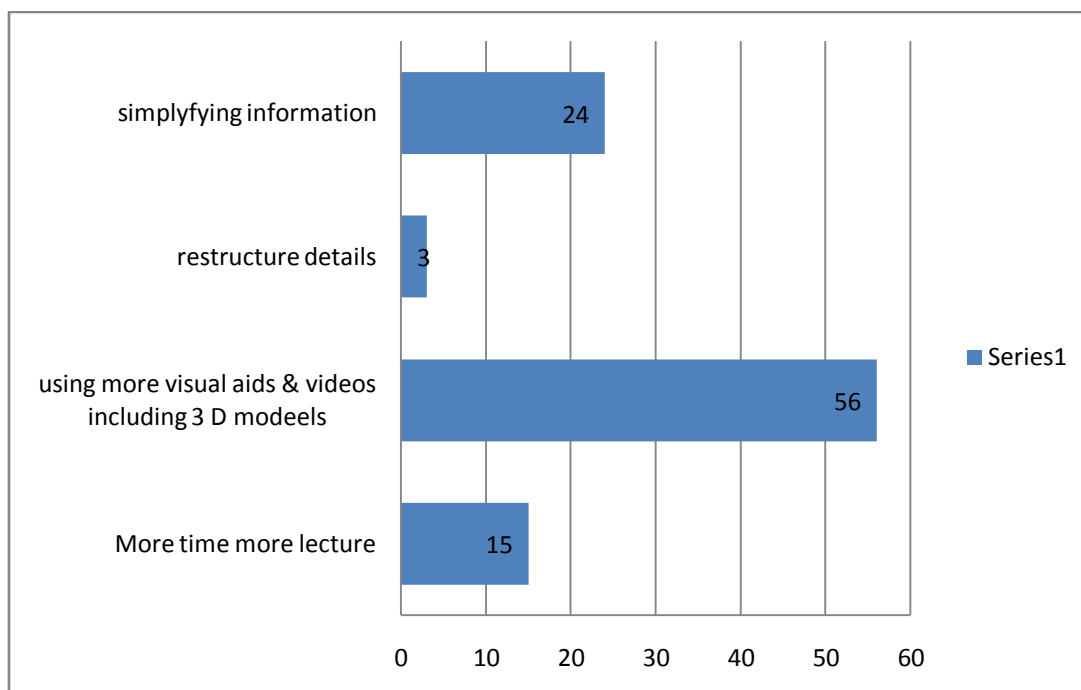
About 56% preferred the use of 3D models; videos and other visual aids while 24 % opted for more simplified and important information should be included in the lectures. 15 % find less time for classes was responsible for poor performance in histology and embryology (Figure 4). On the question of preferred performance evaluation methodology 52% students find part completion tests or stage exam useful; on the contrary 18 % were in favor of part ending exams. 15% and 12% for find terminal exam

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and sub-stages better respectively. Only 3% opted for seminars (Figure 5). Exam pattern to be used 11 % preferred descriptive questions only while 10% preferred multiple choice questions only. In contrast 16 % went for short answer type questions and 63% find that all three types of questions should be included in the exams (figure 6).

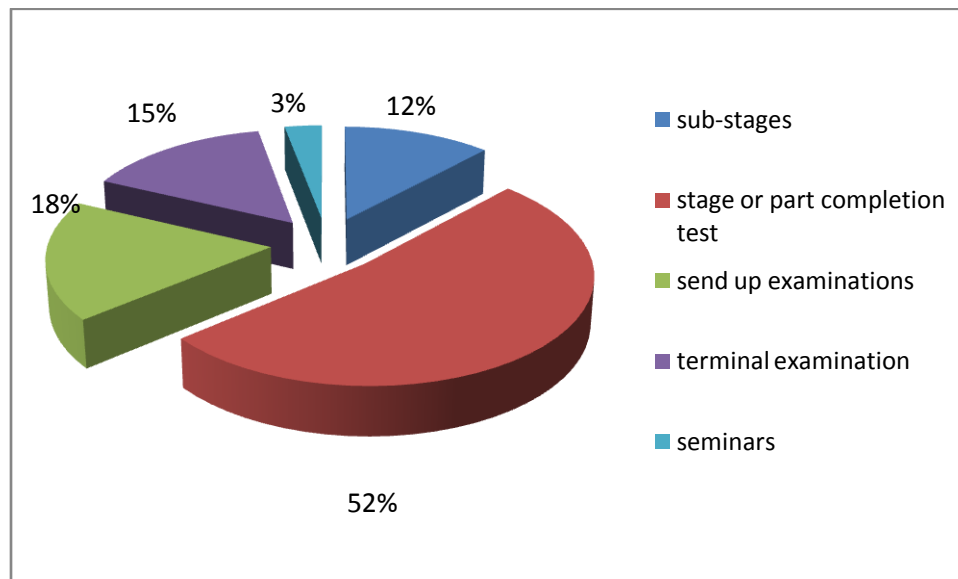


**Figure 3: Pie chart showing mode of preference of practical classes**

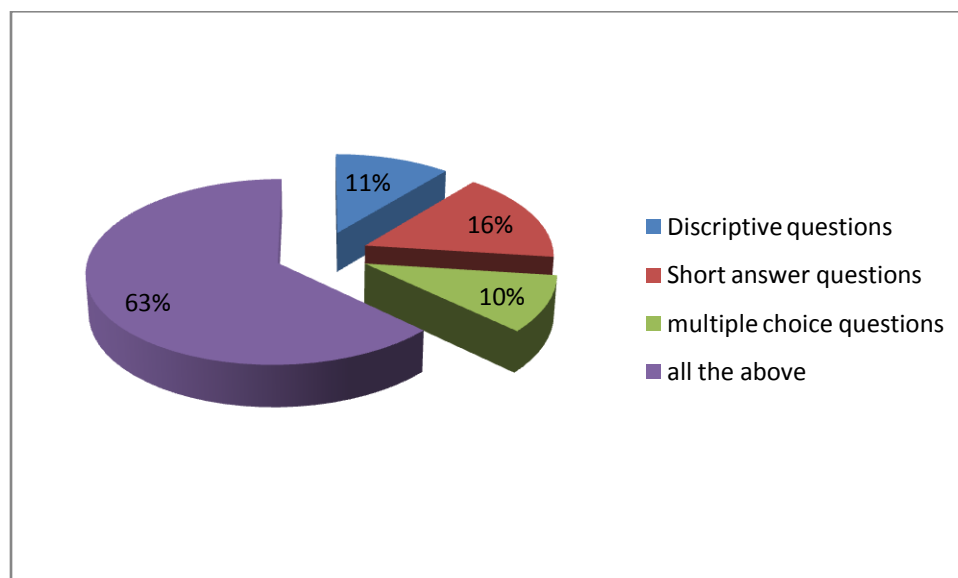


**Figure 4: Bar diagram showing the best possible way to improve histology and Embryology**

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**Figure 5: Pie chart showing the preferred method of evaluation by students**



**Figure 6: Pie chart showing the preference of examination pattern**

Tremendous changes have taken place worldwide to improve the standards of medical education. The concept of medical education has changed as knowledge is no longer restricted to textbooks and lectures. In this era of computers and internet; access to internet, electronic journals, educational videos and conferences are the new ways of teaching. To improve teaching and achieve the goals; assessment methodologies have evolved. Assessment is an essential part of medical education. It gives evidences of how the students are learning and indicates teaching standards. A medical curriculum develops in response to requirement of students, institution and communities. Student's feedback about the curriculum is a useful basis for modifying and improving medical education. Through feedback we can identify areas of strength and/or weakness of teaching methodology used so that steps can be taken to rectify deficiencies and to evolve the curriculum and achieve intended goal. The present study is important because of the student's involvement on how to teach better (Jaiswal *et al.*, 2015). The ultimate aim is to identify areas of strength and/or weakness of the methodology used. Our finding supported by

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the findings of another study, in which a majority of the students elicited the judicious use of chalk and boards with OHPs or power point presentations (Bhowmick *et al.*, 2009) As indicated by students, a good quality lecture does have a positive influence on students and encourages them for self-study and thus increases intrinsic interest in the subject. The majority of the students remarked that more emphasis should also be laid on horizontal integrated teaching of anatomy and physiology as it is more helpful in learning. This is in agreement with earlier studies (Sinha, 1998). Course assessment instruments such as feedbacks, help the faculty in identifying the strengths and the weaknesses of their teaching and evaluation methods (Ruth, 2000; Richardson, 2004). Traditional classes with blackboard presentations were mostly favoured by the students in the biomedicine and the medicine courses (Novelli and Fernandes, 2007); which was in contrast with our present study where powerpoint presentations with chalk and board were most favoured. Rokade *et al.*, (2013) reported that Majority of students (more than 2/3) expressed that the Chalk & Board method was more interesting than Power Point Presentation. In present study the best method for theory classes was teaching in small groups with interactive media (51%), followed by problem based learning (22%) and lecture (18%). In assessment of the multimedia-supported anatomy teaching, students satisfied for better perception of practical anatomy classes by multimedia-supported anatomy classes and they relied on scientific content of the multimedia presentations in the level of perception to anatomy (Abdulmonem and Gamal, 2008; Jaiswal, 2015). In present study, majority of students preferred multimedia teaching methods as a best anatomy teaching methodology and it relies on scientific, does not cause lack of attention and is not boring. Multimedia-supported teaching of anatomy classes was overall very successful and acceptable by the students. The use of multimedia-supported teaching will open new horizons to shift to more independent learning and integrative learning or even distance learning (Abdulmonem and Gamal, 2008). As for the teaching methodology majority of students feel that dissection hall teaching is the best method followed by slide projector /AV projection / Multimedia, conventional chalk & board methods (Gholamreza and Narges, 2012).

In present study, majority of students felt that dissection hall teaching and multimedia teaching (52%) as a best methodology followed by dissection hall teaching and chalk and board (37%) in contrast with Jaiswal (2015) where dissection hall with chalk and board were supposed to be the best methodology for practical classes. Respondents indicated following reasons for the perceived problems in histology, difficult and confusing concepts (12%), badly structured lectures (18%) and insufficient time (10%) (Karmer and Soley, 2002). In present study, majority students (77.51%) who faced problem in understanding Histology were having difficulty in identifying structures on slide. 64% students indicated that problems in understanding embryology stemmed from an inability to visualize, comprehend the sequence of events which characterize developmental process, particularly 3 D and inadequate time and sequence followed in lectures (Karmer and Soley, 2002). In present study, students faced specific problem in understanding embryology due to inability to visualize, inability to comprehend sequence of events and inadequate time, they find use of more audiovisual aids (56%), simplified information (24%). With regards to evaluation methods, the students found that the grand stage test taken at the end of each system is the most useful method in preparing for the final university examination which was in synchronicity with (Arora and Kumar, 2014).

### **Conclusion**

In the end, the two approaches cadavers and computers (used as symbols of practical and theoretical models) are best seen as complementary. We believe that computerization will begin to make enormous contributions to the learning of basic anatomy. Overall at this initial stage of medical profession computer assisted learning system offer flexibility, enabling students to choose the place, time, pace and process of learning, the use of computer rooms can also be useful in learning outside the classroom, such as the review of anatomical subject matter required by students in the later stages of the training in the health care area. To conclude, it is important to know the needs of our students. The students are the best person to comment on the effectiveness of any teaching and evaluation system. Frequent feedback may help the teachers to plan the curriculum and improve upon the teaching and evaluation methodologies adopted in



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the institutions. It is very essential to synchronize teaching and evaluation methods with special requirements of medical students.

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