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Letter to Editor

Education Section

Is the Time Right to Start Using Flipped Classrooms in Indian Medical Colleges?

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Dear Sir,

Prober and Khan have proposed changing the way medical students are educated in view of the vast expansion of medical knowledge, the increase in specialization in medicine and modern medical students' proficiency in using communication technology [1]. They propose a new model for medical students' learning based on the "flipped classroom" design and they ask all medical institutions to cooperate and adopt this model [1]. In this model of medical education, there would be no lectures in the classroom during college hours [1]. Students would instead watch short pre-recorded lectures with embedded questions on core topics online, at their convenience [1]. They could watch the videos repeatedly if required until they thoroughly understand the content. In the classroom, instead of them being passive observers, they would be encouraged to learn actively, using different interactive methods that are centered on the students. For example, this could be done by using clinical case scenarios (that would stimulate their curiosity, as the clinical relevance of the topic would be demonstrated), which they would discuss and solve by applying the knowledge gained from the online lectures, helped by the faculty who act as facilitators of their learning [1]. As topics that used to be previously taught in class are learned by students at home and homework is performed in the classroom with other students, under the guidance of teachers, "flipping" of the classroom occurs [1]. This model seems logical as teachers often complain about the lack of time and difficulty in engaging modern medical students and about how students often have difficulty understanding the clinical relevance of what is being taught, especially during their first year in medical college in the basic science subjects of Anatomy, Physiology and Biochemistry.

Have flipped classrooms been found to be effective by medical students? Students of Stanford Medical School viewed flipped Biochemistry classrooms with the freeing up of class time to discuss clinical vignettes emphasizing the biochemical basis of disease positively with there being an increase in positive course reviews and attendance by students [2] and early reports suggested that using the flipped model for other subjects like genetics, health policy, biomedical ethics, endocrinology and women's health was also found to be favorable by their first and second year medical students [1]. The flipped classroom model has been compared with a traditional lecture-based curriculum and found to be very effective in disseminating important concepts in cardiovascular, respiratory, and renal Physiology at the Indiana University School of Medicine with students of the flipped course scoring significantly higher in Multiple Choice Question examinations in each organ system [3]. The prior preparation by students watching pre-recorded videos automatically frees up the classroom time and the use of student-centric interactive patient-based discussion exercises appeals to adult learners causing them to enthusiastically engage in the learning process and benefit. Goldberg however cautions that sets of online lectures will not build the required foundation of knowledge that medical students need for subsequently applying concepts and that the system of medical education may actually be weakened [4]. It would probably depend on the individual faculty and student. Does the flipped classroom model work well in Asia as it does in the West? A recent review of case studies from different Asian countries revealed that even though it is a relatively new model, the majority of Asian students belonging to different disciplines like engineering, computing and medicine embraced and approved the flipped classroom model, although insufficient data was available to draw conclusions about improvement in grades [5].

The Medical Council of India has recently recommended various curricular reforms including early clinical exposure of undergraduate students (in the first year itself as against the usual practice of students being exposed to patients only from their second year onwards) and integration of one subject with other subjects being taught in the same year of study (E.g., Physiology with Anatomy and Biochemistry) or in subsequent years (E.g., Physiology with Pathology, Pharmacology and General Medicine) of the course [6]. Indian medical colleges are in different stages of implementing these reforms in order to demonstrate the clinical relevance of basic science teaching to medical students. Could this not be an ideal time to consider implementing the flipped classroom model in the teaching of basic sciences? During classroom time, discussion of clinical case scenarios or other relevant interactive methods could be used for ensuring both early clinical exposure and integration, and lectures could be viewed online. This would involve hard work by teachers (in designing different video formats of core topics for pre-class preparation and creating interactive resources for use in the classroom), support of policy makers (in re-framing rules regarding hours allotted for didactic lectures) and the support of other stake holders including students. As with any other change, implementing a flipped classroom could be met with initial resistance. But as there seems to be a felt need for flipped classrooms, is the time right for us to weigh the advantages and disadvantages take up the challenge and effectively flip at least basic science classrooms in medical colleges in India?

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