

IMPORTANCE OF STUDENT-LED OBJECTIVE TUTORIAL (SLOT) IN UNDERGRADUATE MEDICAL EDUCATION

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ABSTRACT

Background: To introduce and assess an innovative tutoring program named ‘Student-Led Objective Tutorial’ (SLOT) among Second year M.B.B.S undergraduate medical students. **Materials and Methods:** Faculty of department of pathology of Mahatma Gandhi Medical College, Navi Mumbai in October 2015 introduced and assessed this program. A batch of 124 second year medical undergraduate students was divided into 2 broad groups A and B. Both groups were asked to prepare a topic already taught. Group A was exposed to MCQ tests. Group B was exposed to SLOT. Group B was divided into 6 groups and each group was asked to prepare an objective question and also its rationale. They were asked to present their questions either using power point or black board. Instructions were given to divide responsibilities among each group member. Faculty was interacting with all groups while they were framing their questions. The proceedings were facilitated by two associate professors, one assistant professor and one postgraduate resident. Student feedback forms were evaluated at the end of the session. **Results:** About 89.5% (111) of the students favored SLOT. There was no significant difference between batches in their opinions on whether to pursue SLOT in future. 89% of the students agreed that it encouraged their participation in the study. **Conclusions:** SLOT is more effective in deep understanding of a subject than simple lectures. It also improved communication skills among students.

Keywords: medical students, self learning, small group learning, staff shortage, tutorial.

INTRODUCTION

“A tutorial is a class or short series of classes in which one or more instructor provides intensive instruction on some subject to a small group” (1). Tutorial classes for medical students are delivered to develop and test the students own ideas, clarify material presented in lectures, apply general concepts to the solution of specific problems, define and discuss new problems and seek solutions to them, problem-solving skills and encourage students in self-learning (2).

Learning should be multi-directional. Responsibility for learning should be given to the student, with the instructor’s role shifting from lecturer to facilitator. The main characteristic for a good tutorial according to the students is the tutor: a) allowing enough time for discussion, b) accepting students as partners, c) refraining from interference and d) having expertise (3). It is found that the components of a rich and better learning environment are stimulation by classmates, a knowledgeable and creative faculty and a large amount of personal contact between students

and instructors (4).

In Indian medical colleges, undergraduate medical students are taught by teacher centered tutorials by near peer tutors (residents or postgraduate students) of the respective departments. These tutorial sessions are conducted for 50-75 students lasting for 1 hour and it comprises of only question and answer sessions. Pathology has approximately 150 theory teaching hours out of which 2/3rd is didactic and 1/3rd is tutorials. Students are instructed to read a particular topic (displayed on notice board) for the tutorial class and they are asked questions orally for which they have to answer by recall. In undergraduate medical education, the Medical Council of India has emphasized the need to increase small group teaching sessions (5).

It is recommended that students become engaged in activities that produce a deeper understanding of course content through skill development (6). They learn better and more when they are involved actively in learning than when they are passive recipients of instruction (6, 7). In general, students learn what they practice (7). When students act as peer tutors, the content and knowledge they share is better received by their colleagues and create a constructive educational opportunity for their further academic development. A study conducted by Sobral showed that about 96% of all graduates had acted as student tutors at some time during the program and such experience expanded their academic expertise (8). Studies have also shown that student-generated learning issues serve as critical determinants for self-learning (9). Visual aids, when used as a presentation tool, provide variety and stimulate interest in the learning environment and are pedagogically effective (10).

Shortage of teaching staff is experienced in developing countries like India and also in developed countries like the United States and the United Kingdom which worsens with the increase in the number of medical schools. With present staff strength, undertaking conventional tutorial for small groups is becoming more and more difficult.

The issues that were considered for our study were the value of working in small groups, providing an opportunity for active learning, think critically, become more articulate and speak better in public with increased confidence (11).

Student led objective tutorials is an endeavour to reduce faculty burden improve student learning and encourage student interaction.

MATERIALS AND METHODS

Faculty of the department of pathology of Mahatma Gandhi Medical College, Navi Mumbai in October 2015 introduced and assessed this program. A batch of 124 second year medical undergraduate students was divided into 2 broad groups A and B. Both groups were asked to prepare a topic already taught.

Group A was exposed to MCQ tests. Group B was exposed to SLOT. Group B was divided into 6 groups and each group was asked to prepare an objective question and also its rationale. Instructions were given to divide responsibilities among each group member. Model of MCQ Slides was shown to the students as a guide for preparing their SLOT Session.

The faculty was interacting with all groups while they were framing their questions. The proceedings were facilitated by two associate professors, one assistant professor, and one postgraduate resident. They were asked to present their questions either by making a power point or using the black board.

The leader of group 1 projected the MCQ to the class. The question was open for a minute to group 2 to answer. In case of the wrong answer, the question passed on to subsequent groups with a 30 seconds time limit. Irrespective of the response, the correct answer was displayed. The objective of setting the MCQ was highlighted. The answer was discussed and an explanation provided by the presenter. The other groups and or teachers had the option to comment. Student feedback forms were evaluated at the end of the session. Calculation of percentages were done and pie charts were made.

Questionnaire survey among Medical students

Name: Age: Sex:

Year of study: Roll number:

NO.	STATEMENT	AGREE	DISAGREE
1	Did you find the tutorial relevant to the topic you were asked to study and come		
2	Was the tutorial interesting		
3	Did teachers supervised you		
4	Did your group succeeded working as a team		
5	Did you learn more than you would have by participating in old type of tutorial		
6	Best aspects of this tutorial		
7	What according to you were the limitations of this session		

Date:

Place:

Signature:

RESULTS

In all, 124 medical students participated in the SLOT study. 89% of the students were affirmative in the post-SLOT survey about various aspects of SLOT (Figure 1). Nearly two-thirds of the students favored SLOT as their future tutorial method. There was no significant difference between batches on their agreement to continue SLOT in future. However, surprisingly, in the open-ended questions comments noted that SLOT enhanced their learning skill (75%) and was cited as the best aspect of SLOT (Table 1). Commenting on the worst aspects of SLOT, participants felt that it was time-consuming and some of the MCQs were ambiguous and limited coverage of topics was there. Some also noticed the lack of cooperation among team members (Table 2). Unsuccessful groups were characterized by a non-balanced discussion because of disintegrated, dominant, passive, poorly prepared or ignorant students. Evaluation of SLOT was done by 2nd Year M.B.B.S students and was divided into 5 categories (Figure 2). Category 1- The tutorial was relevant to the topic (90%), Category 2- The tutorial stimulated interest in the topic (85%), Category 3- The supervision by the teacher was useful (92%), Category 4- My group succeeded working as a team (87%), Category 5- I learned more than I would have by participating in old type tutorial (61%).

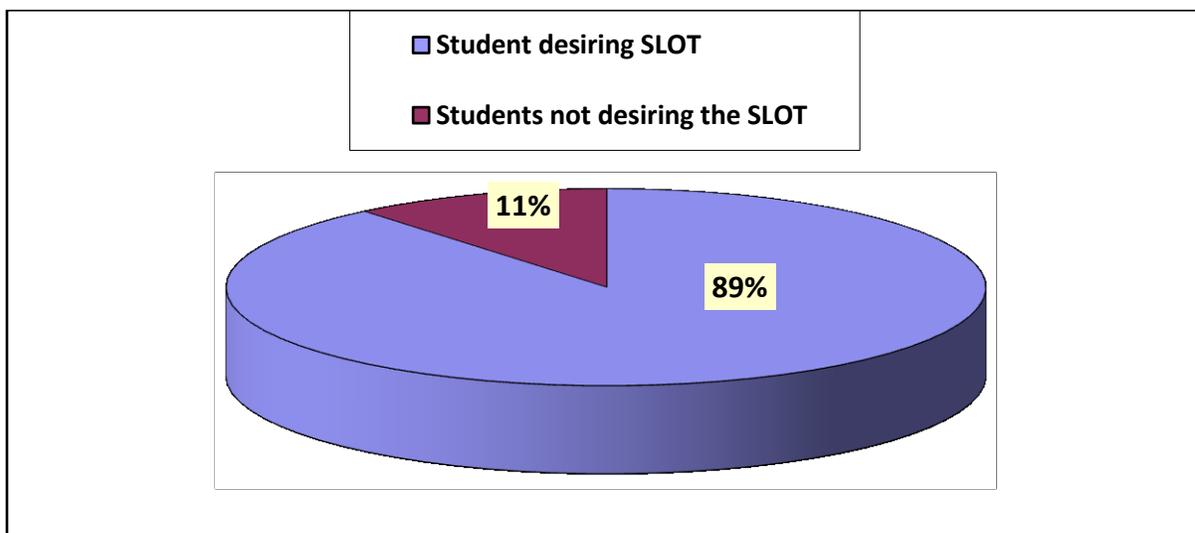


Figure 1: Students opinion about SLOT.

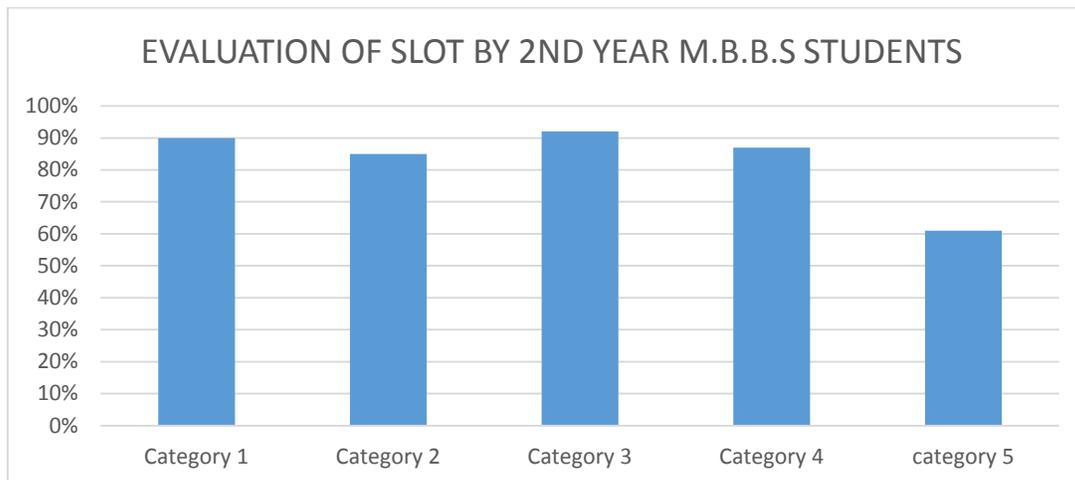


Figure 2: Evaluation of SLOT by 2nd Year M.B.B.S students.

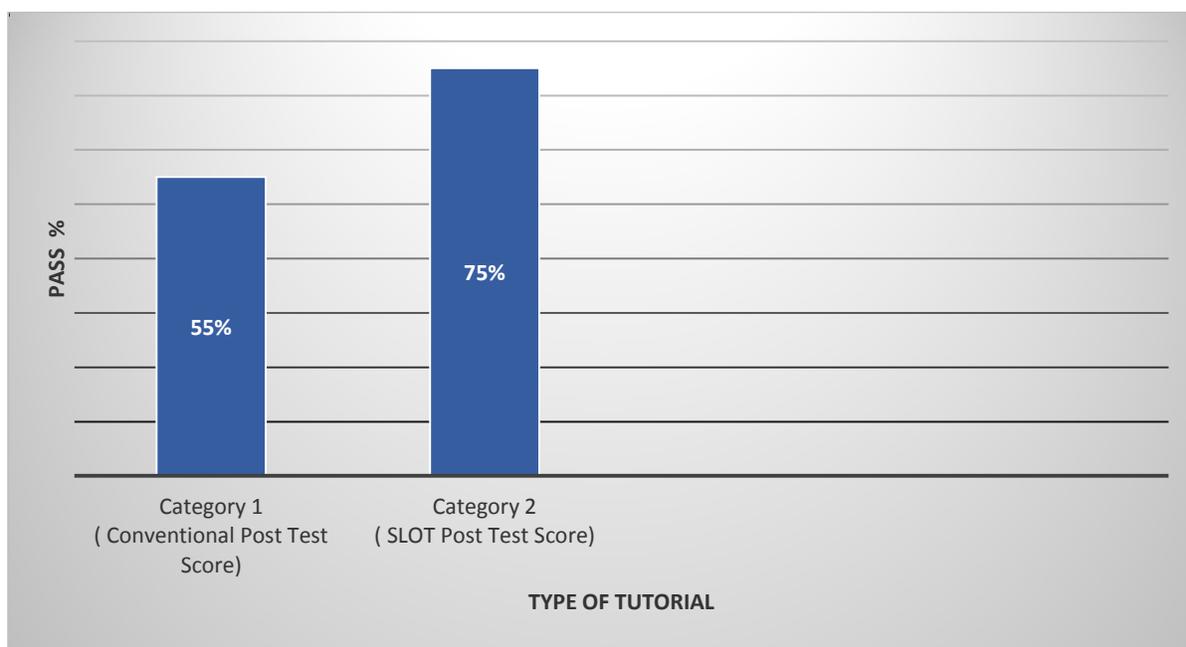


Figure 3: Students performance: Conventional Vs SLOT.

Table 1: Best aspects of SLOT.

Serial No.	Best aspects of SLOT	Frequency of comments
1	Increased learning skills	75
2	Enhanced participation	62
3	Exam oriented and useful	50
4	Interesting	27

Table 2: Worst aspects of SLOT.

Serial No.	Worst aspects of SLOT	Frequency of comments
1	Time consuming	30
2	Ambiguous MCQ's	23
3	Less co-operative group members	22
4	Limited coverage of topics	7

Table 3: Comparison between SLOT and conventional method.

Serial No.	Parameter	SLOT	Conventional Method
1	Staff strength needed	One teacher to supervise the whole class	More than one depending on group number
2	Exam orientation	MCQ	Viva voce
3	Content reach	Uniform	Varies with teacher
4	Group learning	Yes in and out of class	No
5	T-L method	Slide presentation	Mostly verbal
6	Individual attention	Not possible	Possible
7	Learning Strategy	Active	Passive
8	Topic coverage	More focused and objective	Less focused and objective
9	Prior preparation by students	Must read and prepare	May or may not read
10	Group evaluation	Objective	Subjective
11	Time consumption	Usually more	Variable
12	Teaching led by	Student	Teacher
13	Learning issues determined by	student	Teacher

DISCUSSION

Out of 124 M.B.B.S students who participated in the study, 89% were optimistic about SLOT. Students, as well as tutors, agreed that SLOT was relevant to the

topic and students enjoyed working in a team with lots of enthusiasm. This correlates with the suggestion that students acting as peer tutors can be appealing with a constructive educational opportunity

for their further academic development (12). Students were able to communicate their difficulties with tutors and colleagues effectively and the majority of them received adequate feedback on tutorial work via SLOT. According to Sobral, “experience expanded peer tutors academic expertise” (8) and the same is for our students with successive exposure to SLOT sessions.

In conventional tutorial classes, students are subjected to some degree of bias since tutors with different level of knowledge, approach and experience conduct the same topics (unpublished observation and a well-known fact) (12). A more detailed comparison of SLOT with the conventional tutorial is presented in Table 3. SLOT offers uniformity in the proceedings and information is shared by the whole class, equally and fairly. SLOT makes a student understand the essence of an MCQ and improves communication and study skills among students. Students were asked to make a power point or come near blackboard that increased students active participation skills and stimulated interest among them (10, 12, 13).

Medical education in India is on a verge of changing. There is marked decrease in the number of medical teaching staff which worsens with the concomitant increase in the number of medical schools (14). Therefore we have proposed a new style of the tutorial which is learner-centered compared to traditional type. Tutorial classes for medical students may be conducted to develop and test their ideas, to test their understanding of subjects taught in lectures, application of new knowledge to specific problems, developing problem -solving skills and encouraging students for self-directed learning. Tutorials offer possibilities for discussion and interaction between students and teachers. The major advantage of tutorial oriented teaching is that all students can have the opportunity to participate and contribute, their concerns and uncertainties can be freely raised and individuals can receive rapid feedback on their ideas. The tutor’s responsibility is to create an environment which encourages participation of all members of the group (15).

Students had a positive attitude towards SLOT and responded by giving their opinions and suggestions about SLOT. In contrast, with conventional tutorial very often students and teachers complain that, when left to their own devices, some of the students do not contribute (16). It has been reported that students appreciate “active learning is the key to effective learning.”⁶⁻⁸ Cooperative learning exercises, role-playing, simulations, models, debates, and games are active-learning strategies that can be used effectively in large classrooms (12, 17). Therefore, SLOT can also be considered as an additional option, for teaching large classes, with advantages like active learning strategy, overcoming staff shortages and self-directed learning in small groups (12). The students learned during preparation for SLOT (intragroup), as well as during the presentation of the same (intergroup). Further, the content reached the learners uniformly and the role of teachers in guiding the process was exceedingly well.

Worst aspects of SLOT- Majority of the students felt the time-consuming nature of the process and teachers pointed out that such sessions should be conducted more at the start of the semester. The groups were allotted specified areas of a given topic. The groups were asked to prepare the given lecture topic and choose the area of interest and to construct MCQ on it. The group was responsible for identifying the more important aspects of the topic. This resulted in a few ambiguous MCQs which were notified during the proceedings or brought to our attention through their comments about SLOT (12). A study conducted by Virtanen et al (1999) in which students were asked to describe experiences of a successful tutorial session: what they did themselves? what the other students did and how the group did its work ?. Successful tutorials relied most crucially on the balanced discussion between the students and careful preparation for the session. Unsuccessful groups were characterized by a non-balanced discussion because of disintegrated, dominant, passive, poorly prepared or ignorant students (19).

A similar study was executed by Waghmare LS et al (2012) in which the study compared the educational effectiveness of SLOT with traditional tutorials and

student's preferences and satisfaction with these formats. Results showed no significant differences between the two educational formats in students' test grades. Retention of knowledge through active participation has cited a reason for preferring SLOT. Better satisfaction was attributed to SLOT, but not better learning results (18).

Therefore to conclude the discussion SLOT is an additional tool for existing teaching modalities and excellent method in colleges where teaching staff is less (12).

CONCLUSION

All subjects and topics of healthcare system can be taught by using SLOT. It helps to improve quality of health education and is more effective in deep understanding of the subject than conventional lectures.

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