

Original article

Facilitation of Active Learning in Physiology through Interactive Students' Seminar

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ABSTRACT

Introduction: Traditional lectures, demonstrations, small group discussions, seminars are a few of the teaching learning methods that form a learning pyramid. The passive learning tends to diminish the attention and interest of the pupils, while at the other end the active learning intrigues and engages the students and helps in development of their various learning domains. With this background, the present study was carried out to implement students' seminar as an interactive tool for enhancing the learning outcomes.

Method: The present study was carried out on 99 first year MBBS students by the department of Physiology of Smt. Kashibai Navale Medical College and General Hospital, Pune. A students' seminar was declared and students were encouraged to be peer instructors for 8 topics in general and systemic Physiology. The pre-seminar guidance was provided to the 8 teams of 24 students and the actual event was conducted by the students, where they assumed role of teacher for their colleagues. A qualitative feedback questionnaire was distributed and the perceptions regarding the activity in form of concept clearing, team building, communication skills, motivational activity were asked to be graded on 5 point Likert like scale (ranging between poor=1 to excellent=5).

Results: The assessment of the feedback forms was done using Epi Info software and frequency, percentages were recorded. 98% of the students reported the activity to be highly interactive and beneficial in clearing their concepts and doubts. The colleagues appreciated the peer led instructional sessions and were motivated to be active learners. They reported the attention span to be extended throughout the activity. The teams appreciated the cooperation of fellow students in the group. 78% students found the interactive session to be in alignment of the course.

Conclusion: Students' seminar is one of the good teaching learning tools and can be incorporated in the schedule and alignment with the course. The peer- instructed approach for a large class has positive learning outcomes for the students involved actively in the process as well as the students who are receiving the instructions.

Key words: students' seminar, interactive sessions, peer led instructional activity, active learning.

Introduction

The goal of medical education is to produce the physicians who serve the fundamental purpose of medicine. Physiology is a subject which is at the core of medicine. The teaching –learning tools adapted

during the course of physiology tend to impact the students and can be positively effective if are widely interactive. Traditional lectures, demonstrations, small group discussions, seminars are a few of the teaching learning methods that form a learning

pyramid. Surprisingly the apex of the pyramid holds the traditional lectures and the base of the pyramid signifies “teach others” to be a greater foundation for acquisition, assimilation and understanding of the knowledge. At one end the passive learning tends to diminish the attention and interest of the pupils, while at the other end the active learning intrigues and engages the students and helps in development of their problem solving capability. Active discussions, application of knowledge in daily life, being a performer rather than a spectator in the process of learning makes it retainable for long term (1, 2, 3). Teaching is not be restricted to passing on the facts to the students, but to make them understand the process of teaching, which gives an insight of the learning process. Early Exposure to teaching principles, skills, and techniques in medical school can benefit the students in becoming more effective communicators (4).

Students’ seminar is one such self-directed learning activity that can accommodate large groups of students (5), and confers a greater responsibility on them to acquire information, harness a variety of knowledge resources, develop peer interaction, and prepare for peer teaching and problem solving(6).

Aims and objectives

To ascertain methods of making teaching-learning process more interactive in Physiology for the first MBBS students of Smt. Kashibai Navale medical college, Pune.

To promote active involvement of the students in learning by providing them a platform to step into a role of teacher and address their peers

To break the monotony of traditional lecture pattern and arouse the interest of audience

To inculcate the team work spirit in the students and enhance their communication skills and problem solving capability

To encourage the students to partake in discussions and engage in posing questions to their peers

Method

The present study was carried out on 99 first year MBBS students by the department of Physiology of Smt. Kashibai Navale Medical College and General Hospital, Pune. Discussions were done with the Head of the department and other faculty members to ascertain the topics, date and time for the students’ seminar.

8 topics (each with 3 subtopics) from 3 systems of Physiology (general physiology, Nerve-Muscle physiology and Blood) were chosen and declared 20 days prior to the actual seminar event. The announcement regarding the seminar was done during the didactic lectures and a notice regarding the same was displayed on the notice board. Students were explained the concept of the interactive teaching learning process and were encouraged to participate in the event as the ones who would be actively involved in the discourse of the given topics. The format of the seminar was that the 8 teams of 3 students each were to prepare a topic and present it in front of their peers. They were ensured that the teachers would guide them regarding the resource material and pre-seminar presentations would be checked by the respective guides, so as to contain the content, answer their queries and help them in communication skills.

24 students enrolled for the presentation of the topics. Each topic was divided into 3 subtopics and had 3 participants. To avoid bias in distribution of the topics and teams, a lottery system was adopted, both, for the topics and the team of 3. 2 students enrolled to

be the presentators of the event and 1 student each as a time keeper and score keeper. The peers not enrolled actively were the audience.

The participants were given 10 days to prepare the initial draft and a pre-seminar rehearsal was conducted, which provided valuable inputs with regards to the presentation material, sequencing and timing of each presentation and confidence to face the audience questions. The presentators were guided to introduce the speakers and judges and sum up the event.

The actual event was of 2 and ½ hours duration. Each team of 3 students was given 12 minutes to present their subtopics and 3 minutes at the end of presentation to answer the queries of the audience. The teams took help of Audio Visual aids in form of power point presentations, slide projectors, chalk and board and some even role played a scenario.

The event was completely managed by the students. The teachers were mute spectators.

II MBBS toppers were invited to judge the students' seminar and score the teams according to their contents, presentation, teaching aids and problem solving capabilities.

All the participants were awarded with certificates.

At the end of the event, a qualitative 12 item feedback questionnaire was distributed amongst all the students. A 5 point Likert like scale was used to grade the responses to the questions. The end points of the scale were anchored as 1= poor and 5= excellent. The questions were pertaining to the selection of topics, pre-seminar preparation time, presentation duration, use of audio visual aids and seminar as an effective interactive tool for concept clearing, team work, communication skill development, break in monotony, increase in attention span and motivation to be an active learner.

To ensure honesty in feedback, anonymity was maintained.

Results

The analysis of Students qualitative feedback regarding their perceptions of the teaching learning methodology and overall assessment of the students seminar was done using Epi Info (7) and the percentages, cumulative percentages, 95% confidence limits for the grading (excellent to poor) of various questions in the feedback form were obtained.

78% of the students stated that the selection of the topics / subtopics of the seminar were in line with the objective of understanding the core essence of the systemic physiology. 67% students graded the time allotment between good to very good. 16% felt the time allotted for presentation was excellent. 17% students found the duration of presentation to be inadequate. 55% of the respondents were satisfied with the pre-seminar duration for preparation of the topics, whereas 45% didn't feel so. 96% of students appreciated the stage confidence of their fellow students, were as 97% felt that their peers made the use of audio visual aids effectively

98% respondents were motivated by the teaching learning methodology. 90% students found that the interactive session was effective in clearing their concepts. 82% students found the session to be highly interactive and a means to solve the problems and doubts they had. 86% audience responded with break in monotony due to different speakers' discourse on the subtopics in the given larger topic. 93 to 98% students felt that students' seminar was a motivating and impactful platform where the teaching learning domains of knowledge, skills and attitude can be developed in positive way. 90% students stated increase in their attention span.

Discussion

The students' seminar was an activity carried out with a view to enhance the learning process and involve a large group in active learning. Significantly more students (between 90 to 98%) felt the students' seminar to be highly interactive teaching –learning tool. They enjoyed the fellow students assuming the role of peer educators and display effective communication skills and employ techniques to impart the core concepts of the course. The participants reported a deeper learning and enhanced team work while preparing for the topics. Dandavino, et al., suggest that medical students become more effective communicators and better learners as a result of peer teaching (4). Our results are consistent with those other studies that found the learning benefits when a student is actively involved in the teaching process (6, 7).

The pre-seminar duration for preparation was found to be inadequate by 45% of students. The study by Adam D Peets, et al reflects the allotment of topics at the beginning of the academic year (6), giving ample of time for the students to be more resourceful and well read. In our study, the less time for preparation was compensated by the selection of topics that accommodated 3 students so that the less stress could bring out the more effective educational outcomes.

The students' were encouraged by the learner-centered approach and the engaging in dialogue with their colleagues during question answer sessions boosted their confidence when they were able to test their problem solving ability. The facilitator role of teachers gave them room for being the instructors and handling the class with discipline. The participants within each topic worked together to acquire resource material and helped each other for better understanding of the topic. A study by Helen A

Scicluna emphasis the success of structured peer learning that brings forth the cognitive, skill and attitudinal qualities of the students working in a team. (8,9 10.).

For any educational activity to foster the goals of effective learning tool, it has to be incorporated within the schedule and in coherence of the curricula (11). The perception of majority of the students' (78%) in our study was that the topics chosen for the presentations were in alignment of the course, thus proving the impact of seminar in constructive learning.

Conventional seminar methodology involves small group interaction. Yvonne Steinert et al in their studies have emphasized the importance of various interactive methodologies that can be incorporated to make learning fun and strategies for increasing participation of larger groups in the same (12). The break in monotony and increased attention span were positive outcomes.

The seminar format in our study included andragogical approach within the teams and peer instructed approach for the student audience. The students in the audience too had come prepared for the topics with intention of posing questions to their fellow students, thus fulfilling the learning outcomes of both, the presenters as well as passive listeners. The integration of active and passive learning by means of peer-led seminars into undergraduate courses has shown to have greater benefits (13).

Conclusion

Students' seminar is one of the good teaching learning tools and can be incorporated in the schedule and alignment with the course. The peer- instructed approach for a large class has positive learning outcomes for the students involved actively in the process as well as the students who are receiving the

instructions. The break in monotony due to team work and increased attention span due to novelty within the instructional sessions provides a better opportunity for long term retention of core concepts of the course. The teams involved in role of instructors positively perceived the various learning

domains viz. cognitive, skills and attitudinal. The students' perception of this interactive session was learning benefits in area of concepts and doubt clearing, and confidence boosting activity where everyone was stimulated to be actively involved in learning process.

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