



## Original Research Article

## Student-led seminar as a teaching learning technique to introduce first year medical undergraduate students to self-directed learning

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## ABSTRACT

**Introduction:** Student-led seminar (SLS) is an interactive peer-led teaching learning method which offers several advantages for both the student learners and the student tutors including helping the learners to develop self-directed learning (SDL) skills. The aim of this study was to analyze the perception of first year medical undergraduate students towards a recently conducted SDL module in Anatomy utilizing student-led seminars as the teaching learning technique.

**Materials and Methods:** Participation in the study was voluntary and all 100 first year students consented to participate in the study. Informed consent was taken from the participants. The module was implemented across 2 sessions. In session 1, a clinical case scenario on Shoulder Joint was discussed. Students were then asked to identify knowledge gaps and brainstorm in small groups to formulate the learning objectives. Session 2 was conducted as a student-led seminar after a 6-day gap. Student perception was then obtained using a Google Forms based questionnaire.

**Results:** Thematic analysis was conducted for the responses. Major themes that emerged were that the participants learnt, enjoyed and felt motivated. Students appreciated the role played by the facilitators in guiding them and some of the respondents wanted to take up leadership roles for their teams in future sessions.

**Conclusion:** As medical educators, we should not only encourage the acquisition of SDL skills by the learners but also provide a conducive environment for self-directed learning. To our experience the student-led seminar can be an excellent teaching-learning method for incorporating SDL skills among undergraduate medical learners.

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### 1. Introduction

Student-led seminar (SLS) is an interactive peer-led teaching learning method which is can be immensely useful for teaching undergraduate learners under the new competency based medical education (CBME) curriculum in India. When compared to traditional didactic teaching methods, student-led seminars offer several advantages for both the student learners and the student tutors.<sup>1</sup>

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Peer assisted learning methods in general and student-led seminars in particular have also been reported to help the learners develop self-directed learning skills.<sup>2,3</sup>

Malcolm Knowles described self-directed learning (SDL) as a process in which the learners identify gaps in their knowledge, determine learning needs, decide learning objectives (LOs), identify learning resources, apply the learning plan to acquire knowledge and self-assess the learning outcomes.<sup>4</sup> The learner is therefore responsible for her/his own learning and the initiative to learn must be taken

by the learner; the faculty merely act as facilitators to guide the learners during this process.<sup>3</sup>

To become lifelong learners, one of the roles of Indian Medical Graduates as envisaged in the (erstwhile) Medical Council of India (MCI) Vision 2015 document,<sup>5</sup> it is essential for MBBS students to develop SDL skills early in their academic journey. This is even more important in the current times when medical science keeps changing every day and doctors must update their knowledge and skills regularly to keep up with the latest developments.

The aim of this study was to analyze the perception of first year medical undergraduate students towards a recently conducted SDL module in Anatomy utilizing student-led seminars as the teaching learning technique.

## 2. Methodology

The study was conducted in the department of Anatomy. The study population comprised first professional MBBS students. Participation in the study was voluntary and all 100 students consented to participate in the study. Informed consent was taken from the participants.

4 faculty members formed the core committee and acted as facilitators for the SDL module. The topic selected for the module was 'Anatomy of the Shoulder Joint'. The facilitators planned the implementation of the module, finalized the clinical case scenario and designed the pre-discussion and post-discussion questionnaires, both consisting of five MCQs related to the topic (both forms were designed on Google Forms). The resource material to be shared for the topic was also discussed and finalised by the facilitators. Prior to implementation of the module, the students were sensitized regarding the importance of SDL and were asked to provide honest and unbiased feedback after completion of the module.

The module was implemented across 2 sessions. Prior to this, the bones participating in the formation of shoulder joint had already been discussed in detail during routine anatomy classes. Session 1 was conducted during a 1 hour slot in the timetable. A clinical case scenario on Shoulder Joint was discussed with the students and they were encouraged to identify knowledge gaps regarding the topic and their learning needs.<sup>6</sup>

To bridge the knowledge gaps identified by them, students were then asked to brainstorm in small groups of 10 students each and formulate the learning objectives (LOs). They were guided by the facilitators throughout this process. The LOs formulated by all the groups were discussed in the large group and 10 LOs, which covered the entire topic, were finalised. (Table 1) Students were then asked to return to the same small groups of 10 learners and every group was assigned one among the 10 final LOs.

Participants of each group were asked to read about the whole topic with special emphasis on the sub-topic corresponding to the specific LO assigned to their group.

Students were informed that each group would have to present the sub-topic (corresponding to the LO assigned to their group) in a large group setting, as part of a student-led seminar during the 2nd session. Groups were free to nominate one or multiple speakers; however, it was mandatory for all members of the group to contribute to the intra-group discussion.

All the groups were asked to select a group leader who would have the responsibility of ensuring equal participation from all members of the group. To make sure that all students read the entire topic and not just the assigned subtopic, they were also informed that an MCQ based test on the entire topic would be conducted at the end of the 2nd session. Learning resources relevant to the finalized LOs were shared with the students and a WhatsApp group was created which included all the students and the facilitators.

Students were given 6 days to read about the topic. During this gap, the WhatsApp group was utilized to share additional learning resources and to motivate students for self-directed learning. The facilitators were in constant touch with the students and encouraged participation from each member of all small groups.

Session 2 was conducted as a student-led seminar after the 6-day gap during a 3-hour SDL slot in the timetable. At the beginning of the session, the link to the pre-discussion questionnaire was shared with the students and 5 minutes were allocated for completion and submission of the questionnaire. After this, each group was asked to present the specific sub-topic assigned to them. The presentations were taken up sequentially so as to maintain the flow in teaching of the main topic to be covered. After every group presentation, a short 5-minute discussion was conducted on the sub-topic under the guidance of the facilitators. To ensure that all LOs on the topic were covered and to recapitulate the important points, a 20 minutes discussion and summarization of the topic was conducted by the facilitators after the last group had finished their presentation. The facilitators also answered/clarified the queries asked by the students. After this, the link to the post-discussion questionnaire was shared with the students and 5 minutes were allocated for completion and submission of the questionnaire. Finally, the link to the perception analysis questionnaire was shared with the students and a further 10 minutes were allocated for completion and submission.

## 3. Results

The average score of the respondents showed an increase of 2% points from the pre-discussion (70.2%) to the post-discussion (72.18%) questionnaires, however this increase is not significant. Thematic analysis was conducted for the responses received to the perception analysis questionnaire. Major themes that emerged were that the participants learnt, enjoyed and felt motivated. Students appreciated the role

played by the facilitators in guiding them and some of the respondents wanted to take up leadership roles for their teams in future sessions. The sub themes and student responses received are enumerated in Table 2.

Some students said that the method was time consuming and that it increased their work pressure. They commented that they faced difficulty in time-management and felt it was tiring. Being their first experience with SLS and SDL the students had some suggestions for improvement e.g. every member of the small group should be given a chance to speak in the large group setting, more monitoring by facilitators is required, presentations could be better explained and length of session could be increased. The facilitators felt that these suggestions can be taken up with some logistic improvements and more time allocation to the sessions, thus increasing the acceptability of this method.

When asked ‘What Next?’ the respondents wanted to attend more such sessions and also requested for new small groups in every session to improve their interaction with their batchmates. The respondents felt that the SLS had a lot more audio-visual impact than the routine teaching methodologies. They also appreciated the facilitators for clearing their doubts and motivating/encouraging them which helped in removing their apprehensions.

#### 4. Clinical Case Scenario

‘A 36-year old female presented to the emergency complaining of severe pain and inability to move her right shoulder. Detailed history revealed that the patient was a tourist who had gone swimming in the sea. After 15 minutes of swimming, she suddenly experienced a sharp pain in her right shoulder and described that she felt her right shoulder ‘going out of place’. Due to this she was unable to continue swimming. In the initial physical examination, her right shoulder joint was in slight abduction and external rotation. The affected shoulder had a typical ‘squared-off’ appearance, with a prominence of the acromion. A careful neurovascular assessment proved normal. An urgent X-Ray of her right shoulder was conducted. The radiograph showed anterior dislocation (X-Ray was shown to the students). The patient was administered analgesics and reduction was attempted. The right shoulder was easily reduced using Kocher’s technique and confirmed by a repeat X-Ray (also shown to the students). Her arm was immobilized (in adduction and internal rotation) in an arm sling. Written discharge instructions pointed out the need for the restriction of arm movement, a magnetic resonance imaging in order to evaluate the soft-tissue structures, and an orthopaedic follow-up one week later in her home country.’

#### 5. Discussion

Student led seminars are an active teaching learning method promote self-development of learners. As can be seen from

the results of our study, majority of the students responded positively to the SDL session. The respondents found the new teaching learning technique interesting and were able to learn not only the topic but also communication, public speaking, leadership and team-work skills. Similar results have been reported previously by Haritha et al., Patel et al. and Sabbani et al.<sup>7-9</sup> When students are asked to present a topic in a seminar, it encourages them to research and read about the topic thoroughly, thereby improving the learning outcomes. In our study, some respondents felt that the method was time consuming. Sabbani et al.<sup>9</sup> reported that even though 83% respondents in their study felt that preparing for seminars is time consuming, it promotes deeper understanding of the topic as well as motivates students for self-directed learning. The process of preparing the presentation including researching learning resources on the internet helps the students in learning computer skills including the ability to differentiate between trusted from untrustworthy online learning resources. Imbibing such self-directed learning skills will enable these learners to effectively access online resources for information on latest developments in their specialities.

Addition of a clinical case or problem-based learning promotes critical thinking and analytical skills among the learners. This also incorporates early clinical exposure in the curriculum which is an essential requirement under the CBME guidelines. In the current pandemic setting, when undergraduate medical education has shifted away from direct exposure of learners to actual patients due to the fear of spread of infection, SLSs which incorporate a clinical ‘challenge’ can be an effective way to bridge the gap between the theoretical and practical/clinical aspects of medicine.

The coronavirus pandemic has made us all the more aware that self-directed learning is a fundamental competence for healthcare professionals. Keeping this in mind, as medical educators, we should not only encourage the acquisition of SDL skills by the learners but also provide a conducive environment for self-directed learning and prepare the learners for a lifetime of learning and dealing with novel challenges that lie ahead.<sup>10,11</sup> From the analysis of student perceptions gathered in our study, it is evident that the student-led seminar can be an excellent teaching-learning method for incorporating SDL skills among undergraduate medical learners.

#### 6. Limitations

The present study was conducted only in one institution and with students of only one professional year. In order to better understand the benefits of student led seminars especially with regards to the incorporation of self-directed learning skills among learners, similar studies must be conducted longitudinally on these similar students and in more number of institutions and include students from all professional

**Table 1:** Learning objectives for the session

At the end of the teaching learning session, the learners should be able to . . .	
1.	Describe the type of joint and articular surfaces of joint
2.	Describe the extent of the joint capsule and its synovial membrane
3.	Enumerate and describe the ligaments of the joint
4.	Describe the relations of the joint
5.	Discuss the movements possible at the joint
6.	Identify the muscles acting on the joint causing each movement
7.	Identify the bursae around the shoulder joint
8.	Describe the blood supply of the joint
9.	Describe the nerve supply of the joint
10.	Discuss the applied anatomy of the joint

**Table 2:** Themes and sub-themes derived from and selected responses received to the perception analysis questionnaire

Theme	Sub-themes	Student responses
Learn	Skills	Leadership Public Speaking Communication Skills New/different/innovative method to study
	Topic	Well covered Use of graphics helped learn better Doubts on topic cleared Better understanding Read different books and e-resources Increased interest in anatomy
	Team Work	How others think Talents/creativity in others Team spirit Learnt division of work
	Computer skill	Making a PowerPoint presentation Learnt to be concise and to the point on for presenting the topic
Enjoyed	Overall self development	Gained new thought Discovered my weak points Could express myself in team which I never thought I could
	Interaction Teaching/Learning	Made/met new friends Was fun Was best experience in AIIMS Interesting and simple way of learning Participated enthusiastically Was less boring than lectures Thoughtful discussions
Motivated	Felt confident	Felt strengthened Ready for next presentation Everyone participated enthusiastically

years.

## 7. Source of Funding

None.

## 8. Conflict of Interest

None.

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