

# JOURNAL OF CLINICAL AND DIAGNOSTIC RESEARCH

How to cite this article:

SHANKAR PR, SUBISH P. POSTGRADUATE STUDENTS AS FACILITATORS IN PROBLEM-STIMULATED LEARNING SESSIONS. *Journal of Clinical and Diagnostic Research* [serial online] 2008 April [cited: 2008 Apr 7]; 2:726-730.

Available from

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[709x&year=2007&month=April&volume=2&issue=2&page=726-730&id=186](http://www.jcdr.net/back_issues.asp?issn=0973-709x&year=2007&month=April&volume=2&issue=2&page=726-730&id=186)

## ORIGINAL ARTICLE

## Postgraduate Students As Facilitators In Problem-Stimulated Learning Sessions

SHANKAR PR\*, SUBISH P

### ABSTRACT

Problem-based or problem-stimulated pharmacotherapy teaching in undergraduate medical curricula has been identified as a key intervention towards promoting the more rational use of medicines. The department of Pharmacology at the Manipal College of Medical Sciences (MCOMS), Pokhara, Nepal, emphasizes the more rational use of medicines. The department also admits students to the MSc (Medical Pharmacology) programme. The post graduates (PGs) act as facilitators during the undergraduate problem-stimulated learning (PSL) sessions. Recently, microteaching PSL sessions were conducted and the PGs were assessed by the student groups and faculty members.

A total of five sessions were conducted and assessed, each session being of two and half hours duration. The PG facilitators were assessed by the student groups and faculty members by using a scoring form. The PGs were scored from 1 to 5 on various parameters, and faculty members gave a written assessment of the strengths and weaknesses of the facilitators. The PGs also filled in a self-assessment form after each session.

The median total score was 34.5, and the interquartile range was 5. The maximum possible score was 40. The student group gave a higher score to the PG facilitators compared to the faculty members, and the scores were highest for the third session. Initially, the facilitators acted more like teachers in a traditional setting. Occasional problems with discipline were noted. Making the sessions more interactive, facilitating self-directed learning, and toning down the traditional role of a teacher, were problems.

The overall opinion was positive. We plan to continue and strengthen the sessions for future generations of PGs.

**Key Words** : Facilitators, Pharmacology, Problem-stimulated learning, Self-directed learning

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Department of Pharmacology , Manipal College of Medical Sciences , Pokhara, Nepal.

Corresponding Author: Dr. Ravi Shankar, Department of Clinical Pharmacology & Therapeutics, KIST Medical College. P. O. Box 14142, Imado, Lalitpur, Nepal. Tel.: .: 00977-1-6916201; Fax: 00977-1-5201496. E-mail: [ravi.dr.shankar@gmail.com](mailto:ravi.dr.shankar@gmail.com)

### Introduction

Traditional teaching in Pharmacology has been characterized by passive transfer of knowledge about drugs, and memorization of details about drug classes and individual compounds[1]. The teaching takes place in the form of lectures, and poorly equips students with the skills necessary to rationalize drug therapy in practice[2].

Recently a number of educational programmes have been developed to improve the teaching and learning of Pharmacology and Therapeutics[3],[4]. The Manipal College of Medical Sciences (MCOMS), Pokhara, Nepal admits 150 students to the undergraduate medical course (MBBS) in two batches of 75 students each, in February and August. Pharmacology is taught in an integrated, organ system-based manner, with the other basic science subjects during the first four semesters of the course. The college mainly admits students from Nepal, India and Sri Lanka.

The department of Pharmacology uses a mixture of didactic lectures and problem-stimulated learning (PSL) sessions for teaching the

subject[5]. The department concentrates on teaching students to use essential medicines rationally. For the Pharmacology practical session, each semester is divided into two batches of 37 or 38 students, and each batch is further subdivided into five groups of 7 or 8 students each.

In March 2004, the department started a postgraduate (MSc) course in Medical Pharmacology under the Kathmandu University. The postgraduate student is expected to become a competent partner in promoting rational drug therapy among health professionals, and is groomed to become a good teacher[6].

The department teaches MBBS students to use essential medicines rationally. In Pharmacology, the undergraduate students should be able to solve simple problems in therapeutics, prescribe appropriate drugs for a disease condition, and deliver drug-related and disease-related information in a meaningful way to the patient[7]. Recently, class activities have included critical analysis of promotional material and drug advertisements against the World Health Organization's Ethical Criteria for Medicinal Drug Promotion[8]. Sessions have also been started on assessing rationality of prescriptions[9]. The postgraduate MSc Pharmacology students are actively involved as facilitators in the PSL sessions. To strengthen this training, the PGs were assessed during their facilitation of the sessions by two faculty members (PRS and PS). The student facilitators were graded on various parameters by the faculty. The facilitators were also evaluated by the students, and the PG facilitators filled in a self-evaluation form detailing their experience of the sessions.

The present study was carried out to obtain the median total score of the facilitators by the student groups and faculty assessors, compare the median total scores among different subgroups of respondents and different sessions, obtain comments for improving the sessions, and to obtain feedback of the facilitators regarding the sessions

### Materials and Methods

A total of five microteaching sessions were conducted and assessed. The first, second and fifth session were conducted for the fourth semester, while the third and fourth sessions were for the third semester. Each semester of students is divided into two batches for the PSL sessions.

The first and second sessions covered the same topics for different batches of fourth semester students, while the third and fourth sessions did the same for the third semester. The fifth session was conducted for the fifth semester. The sessions were of two and half hours duration, and were conducted for the third and fourth semester students. The topics were 'Alcohol, general anesthesia and drug abuse', 'Diarrhea' and 'Diuretics'. The sessions concentrated on solving clinical problems, selecting personal or P-drugs for a common disease condition, verifying the suitability of the selected P-drug for a particular patient, and writing the prescription.

The PGs allotted the problems to the different groups, acted as facilitators during the sessions, helped with the student presentations, facilitated the discussion, and added points which were not brought out during the discussion. The form used to assess the PSL sessions by the student groups and the faculty members is shown in Appendix A. The PG facilitators were graded from 1 to 5 according to the following scale: 1- very poor, 2- poor, 3- satisfactory, 4- good and 5- excellent. Organization of the session, selection of problems, facilitating group work and the process of group dynamics, ensuring student participation and interest, facilitating student presentation, adding to the presentation, and ensuring self-directed learning, were the various assessment criteria. The groups were free to give other comments on the sheet. The faculty members gave a written description of the session, and the strengths and weaknesses of the PGs as a facilitator. The assessment was shown to the PGs, and the faculty members gave suggestions for improvement.

The self-assessment form to be filled in by the PGs after each session is shown in Appendix B. The lessons learned from the sessions, overall impression about student group work and about the sessions, were noted. The most difficult part of the session and the most positive aspect of the experience were noted. The facilitator was asked to rate the entire experience on an ascending scale of 1 to 5.

The total score was calculated for each student group and for each faculty member for the various sessions. The median total score was calculated. The scores were compared between faculty members and the undergraduate student groups, and between the first, second and third sessions. The scores of the two PG facilitators were also compared. Mann-Whitney U test was used for dichotomous variables and Kruskal-Wallis test for

the others. A p value less than 0.05 was considered to be statistically significant.

The comments made by the student groups and the faculty members were noted, and the more common ones were considered. The self-evaluation forms filled in by the PG facilitators were analyzed.

## Results

A total of five sessions were conducted by the PG facilitators. Each PG facilitator facilitated a particular PSL session. The fifth session was facilitated by both the PG facilitators. The median total score was 34.5 (maximum possible score was 40). The interquartile range was 5. The median total scores between faculty and student assessors, according to the first, second or third sessions and according to the PG facilitators, is shown in Table/Fig 1.

On analyzing the comments of the student and faculty assessors, certain common themes emerged. In certain sessions, the problems selected, did not cover certain aspects of the topic, which were regarded as important. There were problems with the group dynamics. Not all members of the groups participated in the deliberations and group activities. In the initial session, the facilitators were slightly hesitant to mix with the students.

The student presenters were not randomly selected, and a few group members were inactive. The facilitators initially acted more like a teacher in a traditional setting, and as a source of information. This was remedied to a large extent in later sessions.

The blackboard and other visual aids were not used optimally by the presenters. The facilitator did not steer the discussion towards certain concepts, which the faculty felt were important. Occasional problems with discipline were noted.

Certain themes emerged on analysis of the self-evaluation forms filled in by the facilitators. By the third session, the facilitators were confident of conducting a PSL session, and of making it interesting and interactive. The problems noted were, increasing the interactive nature of the sessions, facilitating self-directed learning by the students, and toning down the traditional role of a teacher. Problems with group dynamics were also commented upon. Involving all students in the deliberations was a problem. Certain students found it difficult to switch from a traditional didactic format to problem-stimulated learning.

## DISCUSSION:

Problem-based pharmacotherapy training in undergraduate curricula has been recommended as a core intervention to promote the more rational use of medicines[10]. PGs as future teachers, have an important role in teaching RUM to medical students. Studies have been carried out to assess the teaching skills of residents and house staff.

Table/Fig 1: MEDIAN TOTAL SCORE ACCORDING TO SELECTED PARAMETERS

Characteristic		Median score (interquartile range)	P value
Type of assessor group	Faculty	30.5 (3.75)	< 0.001
	Student	36 (4)	
Sessions	First	33 (5)	0.049
	Second	33 (4)	
	Third	36 (1.75)	
Facilitators	One	33.5 (4.5)	0.581
	Two	35 (6)	

A study in the United States (US) had demonstrated the value of a needs assessment in developing a course, to improve the teaching skills of residents[11]. Another study had shown that residents and students viewed academic preparation for teaching responsibilities positively, and showed agreement on the characteristics of good teaching[12]. An adaptable resident teaching development program (RTDP) has been implemented at the Mount Sinai School of Medicine in the United States[13].

Training residents and other post graduates is important for creating the next generation of teachers. At present, we do not have MD postgraduates (who have joined MD after completing their undergraduate medical degree) in the department, and have only MSc post graduates. PSL sessions play an important role in the teaching and learning of pharmacology in our institution, and we have been training the PGs to facilitate the sessions.

In the department, microteaching sessions have been conducted for both lectures and PSL sessions. The microteaching sessions as already detailed, were conducted to strengthen the PG training, evaluate the strengths and weaknesses of the PG facilitators, and provide suggestions for improvement. The opinion of the student groups and the faculty members regarding the facilitation of the PSL sessions by the PGs was positive. The student groups had a more positive opinion compared to the faculty.

It is heartening to note that scores of the PGs improved from the first to the third session, and the highest scores were obtained in the third session. There was no significant difference in scores between the two facilitators.

The small student groups consisted of 7 or 8 students, and had students of different nationalities and both genders. However, not all members of the group participated equally in the group dynamics. This was noted previously also[9]. We are in the process of trying out various strategies to improve student participation. We carry out formative assessment during the sessions, and also randomly select the presenters from the groups. The facilitators also try to improve the group dynamics, and to get all the students to participate and contribute.

PBL/PSL is activity based, and the student receives feedback and support from other students and the instructors[14]. Learning is based on solving a real problem, and on a foundation of collaboration and integration within a small group context[19]. In our institution, PBL does not cut across subjects, and is confined to the department of pharmacology in the basic sciences. A major part of the instruction takes place through lectures. PBL is a concept with which teachers are less acquainted. There is a misconception about PBL that it can only be used in the setting of a full blown problem-based curriculum, with students working in small groups supported by costly logistic and technical facilities[16]. 'Teacher's Guide to good prescribing' gives practical hints for problem-based learning. The book recommends only interventions which influence the group process, and not interventions on the content of the discussion.

We do not give the students real cases from the hospital, and only give 'simulated' patient problems. The students get support from the faculty members, PGs and other students during the PSL session. The students carry books into the practical hall, and can access internet sources of information in the computer lab.

To take advantage of PBL/PSL, the facilitators and students should be familiar with the skills necessary to work effectively in small groups. Consensual decision making skills, dialogue and discussion skills, team maintenance skills, dialogue and discussion skills, team maintenance skills, conflict management and team leadership skills are important[17]. A good PBL facilitator should be comfortable with relinquishing authority and exerting indirect control. He/she should observe closely and skillfully, and attend

to both social and intellectual interactions[16]. Handling group dynamics may be a new and unfamiliar area for the teachers, leading to high levels of anxiety[18]. This was also observed with our PG facilitators during the initial sessions. The median score under all the different categories of evaluation was 4.

Conducting a PBL/PSL session may be a fine balancing act between giving freedom to the student groups, promoting self-directed learning, and maintaining discipline. Gradually, the PGs were observed to be more comfortable with the role of facilitators. This was reflected in their self-assessment forms.

Microteaching may not be a correct term, as the facilitators were assessed throughout the two and half hour sessions. The number of faculty assessors was low (only two). Only preliminary information about the facilitators during the sessions was collected, and detailed analysis of the parameters and scores was not done.

We believe that the microteaching sessions were successful in making the PGs more effective facilitators. We plan to continue the PBL/PSL microteaching sessions for the future batches of PGs. We plan to encourage the PGs to be actively involved in teaching undergraduate medical students.

### Acknowledgement

The authors acknowledge the support and help of Professor Archana Saha, head of the department of Pharmacology, during the sessions. We acknowledge the willingness of our post graduates, Mr. Sudesh Gyawali and Ms. Durga Bista to participate in the sessions, and let us evaluate their performance. The role of the third and fourth semester undergraduate students is acknowledged. We also acknowledge the help of our departmental colleagues, Dr. Lalit Mohan and Dr. M. C. Joshi.

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