



## Students' perception about small group teaching techniques: role play method and case based learning in pharmacology

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### ARTICLE INFO

Received : 05/01/2012  
Accepted : 07/05/2012  
Published : 01/12/2012

### KEYWORD

Clinical skills  
Communication skills  
Problem solving  
Small group teaching  
Small group learning

### ABSTRACT

**Introduction:** Pharmacology subject though crucial for physicians, is perceived as dry, volatile by medical students. Active teaching-learning techniques in pharmacology are required to increase the interaction and interest among the students. **Objective:** To evaluate the perception of students about two innovative teaching techniques role play method (RPM) and case based learning (CBL) in pharmacology. **Method:** Institutional Ethics Committee permission was obtained. II MBBS students gave written informed consent to participate in this study. The topic "rational pharmacotherapy" was taught to 6 small batches of approximately 18-20 students each. While CBL (n=84) was used for three batches, RPM (n=80) was applied for remaining three batches. After the session, a pre-validated perception questionnaire, containing 15 questions using Likert scale and open ended questions, was administered to the students. **Result:** Majority of students (CBL: 88.10% and RPM: 93.75%) appreciated these methods and felt it facilitated their understanding. These methods enhanced their intellectual curiosity (CBL: 57.14% and RPM: 73.75%), and were interactive (CBL: 71.43% and RPM: 90.00%). Learning atmosphere was perceived as comfortable (CBL: 82.14% and RPM: 77.50%). Students were satisfied with the respective techniques (CBL: 63.10% and RPM: 55.00%) and agreed that knowledge and skill acquired by these techniques will help them in clinical practice (CBL: 78.57% and RPM: 91.25%). **Conclusion:** Students' opinions for both the methods were favourable, though more inclination was towards RPM as it is more helpful for clinical decision making process. Trained facilitators can overcome the shortcomings perceived in CBL as well as in RPM.

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## Introduction

Over the past few years, medical teaching is changing and adapting newer teaching techniques which are more students friendly. Pharmacology being perceived as a volatile subject by students, teachers have to take extra efforts to develop interest in students. Active learning methods involving interactive sessions help the students in critical thinking and problem solving. Active learning activities promote a higher level of learning wherein students control their learning environments and develop interdependent or cooperative relationships with each other (1). Small group teaching in the form of tutorials is commonly used teaching method for higher education like medical education. In this teaching method, teachers talk more and students may not take part in discussions or debate (2). Hence there is a need to apply innovative small group teaching techniques involving active participation from students. Case base learning (CBL) and Role play method (RPM) are two such techniques, which have more interactive sessions and students are involved in thinking, analyzing and interpretation (3).

In CBL, a group of students are given clinical cases. Time is allotted for discussion among groups and to reach conclusion. The group leader presents their conclusion to other groups and facilitator. In RPM, a case scenario is provided to the students, which is nearer to real life situation. Students from the group first discuss about the case among themselves and once they reach to the conclusion of the given case scenario, they enact that case scenario. After this, they have to brief about the salient features of the case to other groups and facilitator. This study is designed to find out the opinion of undergraduate students about these two active teaching methods so that they can be used as an effective teaching tool in Pharmacology.

## Method

This study was conducted in department of Pharmacology & Therapeutics, Seth G S Medical College & KEM Hospital, Parel. After obtaining

the permission from the head of the department of Pharmacology & Therapeutics and Institutional Ethics Committee, the project was started on the current batch of II MBBS of total 180 students. The topic 'Rational Pharmacotherapy' was selected for this study, to be taught to small groups either by CBL or RPM technique. While taking these sessions it was ensured that the topic of rational pharmacotherapy had been already taught in the form of traditional teaching technique i.e. didactic lecture. Hence, the students were well aware of the contents of the topic.

Students who gave the written informed consent were included in the study. Students were divided into 6 small batches of 30 students each. The topic 'Rational Pharmacotherapy' was taught to 3 batches by CBL technique, while remaining 3 batches were taught by RPM. Students present from each batch of 30 were divided into small groups of 5-6 students. For CBL batches, each small group was assigned one clinical case and was given 20 minutes to discuss and reach to the conclusion. In RPM batches, at the end of 20 minutes of discussion among small groups, students had to enact the given scenario in the case.

In both CBL and RPM technique, at the end of session, representative from each group presented the case assigned to them, where pharmacotherapy was discussed giving rationale for the same. In these entire sessions 1 teacher was assigned to each batch of 30 students, to play the role of facilitator. At the end of each session, students were provided with pre-validated questionnaire for the evaluation of teaching technique. The questionnaire assessing the perception of the students about the teaching technique consisted of total 15 questions. The 15 questions were divided into four domains to evaluate general perception of students about teaching techniques, student- students as well as student-teacher interaction, perceived benefits about these teaching techniques and role of teachers as facilitators. Each question was scored on Likert scale from 1 to 5, where 1 indicated "Strongly disagree" and 5 indicated "Strongly Agree". Students were asked to tick whichever

option they felt best. At the end of the questionnaire, students were also asked for any other comment as well as suggestions to improve the given teaching technique. Students were not forced to reveal their identity.

## Result

Total 164 students participated in this study. 84 students were present for CBL technique, while 80 were present for RPM. The percentages of students responding positively to the elements in questionnaire (Likert Score  $\geq$  4) were analyzed (Table 1). Students from the both groups, 88.10% of CBL and 93.75 % of RPM, found the teaching techniques were helpful to facilitate their understanding on the subject. Only 2.38% of CBL and 11.25 % of RPM group thought that there was repetition of points during the session. About 91.67% of students from CBL and 92.50% from RPM group responded with positive opinion about the discussions which were held before and after the session. They also appreciated the fact that adequate time was allocated for discussions in both the groups i.e. 82.14% from CBL and 92.50% from RPM. Students from both the groups, 80.95% from CBL and 85% from RPM, felt that these discussions helped them to understand the topic better. Out of 15 questions, 3 were included in the questionnaire to evaluate students' perception about role of facilitators in these teaching techniques.

Approximately 71.43% students from CBL and 78.75% from RPM agreed that facilitators had taken efforts to make the sessions effective, while 48.81% from CBL and 65% from RPM felt that facilitators have very important role in providing guidance for self-learning in both teaching techniques. About 90% of the students of RPM found the session to be interactive as against 71.43% from CBL. Majority of students from RPM group, 91.25% said that knowledge and skill acquired through this teaching technique will help them in clinical practice, while approximately 78.57% students from the CBL felt the same. As opposed to 73.75% of students from RPM, only 57.14 % of students from CBL felt that the concerned teaching

technique has encouraged their intellectual curiosity. 75% of students of CBL expected to score good marks in exams while 30 % of the students from the RPM had the same opinion.

82.14% students were comfortable with the teaching technique assigned to them from CBL group, as opposed to 77.50% students of RPM. Students from RPM were less satisfied than CBL for the personal attention given by teachers to students: RPM: 71.25% and CBL: 80.95%. Overall perception of the students about teaching technique was assessed at the end of questionnaire. 90.95% students of CBL and 83.75% of RPM gave positive opinion about the respective teaching technique. From the comment section at the end of questionnaire some of the commonest comments highlighting advantages and limitations of the CBL and RPM and suggestions to improve the teaching technique were as follows (as commented by students):

### *Advantages:*

- Retain the information for longer time (CBL: 35.7% & RPM: 26.3%)
- Increases individual thinking and interest in the class ( CBL: 29.8% & RPM: 40% )
- Helps in improving confidence (CBL: 26.2% & RPM: 6.3%)

### *Limitations:*

- All topics cannot be covered by this method (CBL: 0% & RPM: 31.1%)
- Time consuming (CBL: 5% & RPM: 22.5%)
- Details of subject expected for exam may not get covered. Less effective from exam point of view (CBL: 8.3% & RPM: 43.75% )

### *Suggestions by students:*

- One facilitator for each small group of 5-6 students (CBL: 9.5% & RPM: 16.25%)
- More time should be given for discussions (CBL: 11.9% & RPM: 5%). Students should be informed about teaching technique beforehand so they get time to prepare (CBL: 2.4% & RPM: 22.5%).

Table I: Comparison of perception of students towards CBL & RPM

No.	Question.	CBL %	RPM %
<b>A: General perception of students about teaching technique</b>			
1	This teaching technique is good and good understanding is achieved by this teaching technique.	88.10	93.75
2	As a student I was comfortable with this teaching technique.	82.14	77.50
3	As a student I was satisfied with this teaching technique.	63.10	55.00
4	There was repetition of some points during the session.	2.38	11.25
<b>B: Student-student and Student teacher interaction</b>			
5	Discussions were held during / and after the session.	91.67	92.50
6	Time allocated for discussion was adequate.	82.14	92.50
7	Discussions held in class helped in understanding the subject better.	80.95	85.00
8	The session was interactive.	71.43	90.00
9	Students were given an opportunity to clear their doubts.	73.81	82.5
<b>C: Benefits perceived by the students from the teaching technique</b>			
10	I expect to score better in this topic as a result of this teaching.	75	30.00
11	The knowledge and skills acquired about this topic via this teaching technique will help me in clinical practice.	78.57	91.25
12	This teaching technique encouraged my intellectual curiosity.	57.14	73.75
<b>D: Role of teachers as facilitators</b>			
13	For this teaching technique, the Teacher / teachers had taken collaborative efforts.	71.43	78.75
14	The teacher / teachers provided guidance for self learning.	48.81	65.00
15	Teacher / teachers paid enough personal attention to the students.	80.95	71.25

## Discussion

The response of students in general to both these teaching techniques, CBL and RPM was positive. The importance of small group discussions has been emphasized in the previous studies (4). Through these discussions students learn on the process of decision making and reaching to conclusion. This may improve their thought processes. Our study emphasizes this fact by the responses of the students to the questions pertaining to group discussions, with 80.95% of students from CBL group and 85% from RPM group agreeing that these discussions helped them to understand the topic better. Students, when they are actively involved in learning activity learn more because of increased attention and motivation. Interactive teaching also enhances their memory (5).

Although both teaching techniques were appreciated, students found that RPM is more interactive (CBL: 71.43% & RPM: 90%) and intellectually stimulating (CBL: 57.8% & RPM: 73.75%). This can be because of the fact that students from RPM have to actively participate in discussions before and after the session as well as perform in the role play. But at the same time, idea of performing or acting in front of peers and teachers in the RPM can bring anxiety in students. Hence students were less comfortable with RPM (77.50%) than in CBL (82.14%). Active facilitation and group management is key to success of small group teaching. The role of the teacher as a facilitator is very important in these teaching techniques for creating productive learning environment and ensuring the participation of each student (6). Facilitator should manage the small group actively and not dominate them. Students from the both groups (CBL: 71.43% & RPM: 78.75%) agreed that teachers have taken efforts to conduct these sessions. But at the same time students felt that not enough attention was given to them by the facilitators in RPM (70%) as compared to that in CBL (80.95%). This could be because of the fact that RPM is more time consuming than CBL and students need more time to discuss about how to enact the given case. Role play method is considered as an important teaching

tool to develop communication skill among medical students (7). Developing communication skill as a medical student is helpful for building confidence for interaction with students as well as teachers, but students also develop confidence to interact actively with patients in future.

RPM plays important part for development of communication skills in medical students (8) than CBL. This is evident from our study also, wherein 91.25% from RPM stated that knowledge and skills acquired through this technique will help them in clinical practice as compared to 78.57% from CBL. The comments given by students highlighted the advantages and limitations of these teaching techniques. Although RPM actively involves participants and add variety, reality as well specificity to the learners' experience, it can put pressure on students and make them nervous (9). Students felt that RPM is more time consuming and it is not possible to cover the topic in detail because of time constraints. Students relied more on CBL (43.75%) teaching technique for complete coverage of the topic. They also felt that to achieve higher scores in exams CBL (75%), a teaching method closer to traditional teaching method is more reliable than RPM (30%).

The suggestions given by the students were valuable and relevant for improving the teaching techniques, CBL and RPM which are usually implemented during these small group teaching methods. The limitation of the study methodology was that we had allotted one facilitator to overview 5-6 groups of students; whereas students opined that they should have one facilitator for a group of 5-6 students. If this suggestion has to be implemented in future, the infrastructure and resources will be needed to be strengthened. Students' suggestion that they should be informed beforehand while conducting these different types of teaching sessions, especially RPM, was valid. This will give them more time to prepare and enact the given scenario, to cover important aspects of the topic.

## Conclusion

CBL is well tried and commonly used teaching tool in medical education. RPM is considered as a tool to develop communication skill, but at the same time it is also an effective educational tool.

Guidelines for the effective RPM should be followed which includes adequate preparation, assignment of roles, practicing given scenario etc. This can be done by prior intimation to the students about teaching technique to be used for the particular session. This will enable students to concentrate on practical aspects of topic. Both these techniques should have teachers who are trained as facilitators. In future, more attention is to be given to strengthen the teaching by imparting more training to the teachers to serve as able facilitators.

## Acknowledgement

Dr. Nirmala N. Rege, Professor & Head, Department of Pharmacology & Therapeutics, Seth G.S. Medical College & K.E.M. Hospital, Mumbai.

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