

Problem-based learning as a learning tool: Learners' perspective of an Indian medical school

Arunita T. Jagzape, Tripti Srivastava, Nazli Quazi, Alka Rawekar

Department of Physiology, Jawaharlal Nehru Medical College, Sawangi (M), Datta Meghe Institute of Medical Sciences, Wardha, Maharashtra, India.

Correspondence to: Arunita T. Jagzape, E-mail: arunitaj4@gmail.com

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ABSTRACT

Background: Problem-based learning (PBL) is introduced in Indian medical schools as it is an appropriate educational strategy inclined to the SPICES model. Though feedback is taken after PBL sessions, it is mostly quantitative. **Aims and Objective :** To obtain a qualitative approach and in-depth introspection regarding perception toward PBL. **Materials and Methods:** This descriptive study with convenient sampling ($n = 45$) was conducted in Department of Physiology, Jawaharlal Nehru Medical College, Datta Meghe Institute of Medical Sciences, Maharashtra, India, using focus group discussion (FGD). Three FGDs were conducted till saturation using the FGD guide and the results were expressed as per COREQ (Consolidated Criteria for Reporting Qualitative Studies). **Result:** Students opined that PBL, as a part of curriculum, was a better learning tool and helped them in conceptual learning. They suggested that PBL to be taken after every system of physiology. **Conclusion:** The overall attitude of students regarding PBL was positive with some relevant contextual recommendations with regard to Indian settings.

KEY WORDS: Problem-Based Learning; Qualitative Approach; Perception; Focus Group Discussion; COREQ

INTRODUCTION

Problem-based learning (PBL) is one of the educational strategies of the SPICES model,^[1] and it can enhance the skills to solve various forms of problems.^[2-4] PBL changes the attitudes for learning toward a more positive side.^[4,5] Jawaharlal Nehru Medical College (JNMC), Datta Meghe Institute of Medical Sciences, Maharashtra, India, has also implemented PBL in hybrid curriculum. Feedback is taken in the last session, which provides only a quantitative analysis of the PBL sessions often not reliable because a student can mark the questions in a row blindly. Qualitative data are needed to provide in-depth introspection of the views


regarding PBL. Focus group discussion (FGD) is a rapid appraisal technique that can provide us with a wealth of qualitative information.^[6,7]

Hence, this study was undertaken with an aim to gather the perception of students regarding PBL through an FGD. The objectives were (1) to record the attitudes and acceptance of first-year undergraduates regarding PBL and (2) to analyze ideas, expectations, suggestions, and incorporate wherever possible the suggestions that emerged out of the FGD.

MATERIALS AND METHODS

The research was conducted according to the principles of the Declaration of Helsinki.

It was a descriptive study with convenient sampling conducted in Department of Physiology, JNMC. First-year MBBS students participated in the discussion after completing their PBL sessions. The participants selected for the focus group were the group leaders for PBL sessions (15 groups were formed for PBL sessions). Written consent was taken from each participant for participation and audio recording of sessions.

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Table 1: Theme I—opinion of the students about PBL as a learning tool in comparison to lectures

Themes	Responses
Theme I: opinion of the students about PBL as a learning tool in comparison to lectures.	<p>Some of their remarks were as follows:</p> <p>“PBL is effective. Thought processes are stimulated for the practical cases. Cases are presented the way doctors will solve them. There is a different view to look at cases.”</p> <p>“PBL helped me in conceptual learning. We were told about the concepts that should be framed.”</p> <p>“Helps us a lot. We are not dependent on one subject. We are fed up of theory. This is a new concept.”</p> <p>“Every one is given a task. We sit and together discuss the task. This is a good way.”</p> <p>“We studied the topics and researched books.”</p> <p>“Everyone can't mug up. It will help everyone to make up the diagnosis.”</p> <p>“PBL is a better teaching learning process. We are not able to concentrate in lectures. But PBL helps in concentrating and focussing on a case.”</p>

Table 2: Theme II—drawbacks regarding PBL

Themes	Responses
Theme II: drawbacks regarding PBL.	<p>Participants were in dilemma and had to stress hard. Some of them raised their brows and smiled. After a brief pause, there were three opinions regarding the drawbacks of PBL:</p> <p>“We can miss out points in PBL but in lectures nothing is missed out.”</p> <p>“Topics are not covered in lectures later on. If not included in lectures, then it must be summarized properly.”</p> <p>“Many hesitate to speak out in a group.”</p>

Table 3: Theme III—opinion regarding whether PBL should be discarded/included in curriculum? If included then what should be the frequency?

Themes	Responses
Theme III: opinion regarding whether PBL should be discarded/ included in curriculum? If included then what should be the frequency?	<p>“Should be included.”</p> <p>“Time management should be done. PBL should be held more frequently and more time should be given for discussion.”</p> <p>“Instead of lectures, focus should be on PBL.”</p>

Focus group discussion guide
Explanation of purpose of FGD
Introduction : of self and participants
Themes:
1. PBL as a learning tool in comparison to lectures.
2. Drawbacks regarding PBL
3. Whether PBL should be discarded/ included in curriculum? If included, then what should be its frequency?
4. Improvisations you would like to make if you are to conduct a PBL.
Thanks to the quorum.

Figure 1: Focus group discussion guide.

FGD Team

One facilitator having experience in conducting an FGD guided the session. Two rapporteurs noted verbal and nonverbal gestures. FGDs were carried out till saturation was reached (i.e., after three FGDs).

Conduction of FGD

At the outset, the purpose of FGD was explained. Written consent was taken for participation and audio recording. It started with getting acquainted with the participants.^[6] The key questions^[8] were introduced in a sequential manner. The observations were recorded verbatim, gestures were noted down, and some key discussion points were emphasized on (Figure 1).

Statistical Analysis

The responses of FGD were analyzed using coding and categorization and reported as per COREQ—Consolidated Criteria for Reporting Qualitative Studies—a 32-item checklist.^[9]

RESULTS

Four themes were selected for FGD. The observations regarding participants' perception about different FGD themes are depicted in Tables 1–4.

Table 4: Theme IV—improvisations you would like to make if you are to conduct a PBL Focus group discussions was reported as per COREQ.^[9]

Themes	Responses
Theme IV: improvisations you would like to make if you are to conduct a PBL.	<p>Students were asked to think about improvisations that they would like to bring forth if they were to conduct a PBL. The opinions were further divided into subthemes after analyzing the data.</p> <p><i>Subtheme I: Time factor</i></p> <p>“More time is needed.”</p> <p>“PBL should be given on same day and completed on same day because patient can't be seen in weeks.”</p> <p>“Increase the time. This will give chance to improve those who are bad in studies. It provides a groundwork for students.”</p> <p><i>Subtheme II: Leadership</i></p> <p>Under this subtheme, there were mixed responses. Majority of participants felt that leader is not required or change the importance of group leader. Minority felt that group leader is required.</p> <p>“No one should be a group leader.”</p> <p>“Change the terminology from group leader to a group representative.”</p> <p>“We can give everyone chance in a group to be a leader.”</p> <p>“Rotation should be there. Persons will become more responsible.”</p> <p>“Teacher can point out who can be group leader than the students selecting themselves.”</p> <p>“Team leader can have lot of aggressive gestures.”</p> <p>“Whole responsibility comes to leader and others relax.”</p> <p>“Under the leadership we are interactive and comfortable.”</p> <p><i>Subtheme III: Preference in assessment</i></p> <p>“PBL is not given importance. It will be more effective if importance is given and tagged to reward system.”</p> <p><i>Subtheme IV: Role of facilitators/teachers</i></p> <p>“Teachers should be involved more.”</p> <p>“After the discussion, teacher will teach.”</p> <p>“Teacher should guide more.”</p> <p><i>Miscellaneous</i></p> <p>“Same process, no change to be made.”</p> <p>“Each student should be given to reach conclusion separately, not in group.”</p> <p>“It should be earlier in the term. It leads to better focus.”</p> <p>“PBL can be taken after every system.”</p> <p>“Lectures should be in that format. Important topics to be taken from syllabus. In lectures also, case should be given on spot. 5 min = to think on case, 25 min = to search, 30 min = teacher teaches.”</p> <p>“If whole PBL sessions are over and if something not understood, it should be then taught by teachers in lectures.”</p> <p>“Preference to be asked in class for PBL or lectures.”</p> <p>“Case scenarios should be related to theory topics going on in lectures.”</p> <p>“We can modify PBL as seminars. First PBL case discussion can be conducted and then case can be presented as seminar. Every group will get a chance.”</p>

Focus group discussions was reported as per COREQ.^[9]

Domain 1: Research Team and Reflexivity

Personal Characteristics.

1. Interviewer/facilitator: All the four authors conducted the FGDs.
2. Credentials: Author 1: MD, PhD Scholar, MPhil in Health Professions Education (HPE); Author 2: MD, PhD Scholar, MPhil in HPE; Author 3: MD, PhD; Author 4: MD, PhD Scholar, MPhil in HPE.
3. Occupation: At the time of the study, all the authors were doctors.
4. Gender: The researchers were females.
5. Experience and training: Author 1: MPhil in HPE; Author 2: MPhil in HPE, FAIMER fellow; Author 4: MPhil in HPE, FAIMER fellow.

Relationship with Participants.

6. Relationship established: The established relationship before study commencement was of a teacher and student.
7. Participant's knowledge of the interviewer: The participants were not aware about the reasons for doing the research until they were involved for the FGDs and explained about it.
8. Interviewer characteristics: Interested in research topic.

Domain 2: Study Design

Theoretical framework.

9. Methodological orientation and theory: To analyze the content, to systematically organize data into a structured format and grounded theory, and to build theories from the data.

Participant selection.

10. Sampling: Convenience sampling.
11. Method of approach: face to face.
12. Sample size: Fifteen participants in each three groups.
13. Nonparticipation: In our study, there was no nonparticipation.

Setting.

14. Setting of data collection: The data were collected at workplace, that is, Department of Physiology, JNMC.
15. Presence of nonparticipants: No one else was present besides the participants and researchers in our study.
16. Description of sample: The samples were homogeneous in relation to age.

Data collection.

17. Interview guide: An FGD guide was prepared that included four themes, on which FGDs were carried out.
18. Repeat interviews: Two repeat FGDs were carried out (total three).
19. Audio/visual recording: Audio recording was carried out during the FGDs. The participants did not give permission for video recording.
20. Field notes: Field notes were made during the FGDs. (Field notes maintain contextual details and nonverbal expressions for data interpretation.)^[9-11]
21. Duration: The duration of FGDs were around 50 min.
22. Data saturation: Yes.
23. Transcripts returned: The transcripts were not returned to the participants for comment and/or correction.

Domain 3: Analysis and Findings*Data analysis.*

24. Number of data coders: Four.
25. Description of the coding tree: Yes.
26. Derivation of themes: Themes were identified in advance and subthemes were derived from the data.
27. Software: Softwares were not used to manage the data.
28. Participant checking: The participants did not provide feedback on the findings.

Reporting.

29. Quotations presented: No.
30. Data and findings consistent: Yes, there was consistency in data presented and findings.
31. Clarity of major themes: Yes.
32. Clarity of minor themes: Minor themes were derived from the major themes.

DISCUSSION

To gather the qualitative in-depth perception of the students regarding PBL, we carried out FGDs with four themes.

In this study, students perceived PBL as a better learning tool than lectures in basic sciences. Students were exposed to a different perspective to look at the cases. This experience was also shared by Nanda and Manjunatha^[12] and Omnar^[13] in which PBL was perceived as a better tool than traditional teaching in subject of physiology. PBL was unanimously elected to be included in curriculum in this study. This is in contrast to a study^[12] in which it was also looked from a perspective of waste of time.

Opinions ranged from no change to many improvisations to be made. All the participants of the FGD group agreed that more time is required for the conduction of PBL and the gap between the sessions should be minimized. Group members were of the opinion that group representative instead of a group leader to be selected and that too by the tutor. Majority agreed that the team leader should not be there, if there then rotatory. Students opined in this study to tag PBL with assessment methods to increase its importance. This is in agreement with the findings of Nanda and Manjunatha^[12]. Students demanded more involvement and guidance of the facilitators in PBL in this study. This is in contrast to the study by Nanda and Manjunatha^[12] in which students did not appreciate the role of tutors in PBL session and that by Steinert^[14] in which students opined that tutors should act as facilitators.

CONCLUSION

FGD gave an array of perceptions regarding PBL. PBL was considered as a better learning tool as it was conducted in small groups and fostered interactivity. Various recommendations were put forth by the students, which can be considered in terms of contextual variations in medical schools. The suggested modifications although cannot be generalized, they implicate that any teaching-learning methods should be adopted after taking into consideration the readiness of local faculty, perspectives of learners, and their prior experiences with that method.

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