

Problem-based Learning in Anatomy: Students Perspective

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Abstract

Introduction: Problem based learning is an instructional student-centred approach where a clinical problem is a context for students to apply knowledge, and skills, formulate learning goals and learn to work in a team. It makes T-L more interesting, increases the depth of understanding and retention of content and makes them lifelong learners.

Material and Methods: The study was carried out for three years (batch 2016-17, 2017-18, 2018-19). First-year undergraduate students participated in the study. Small groups were made containing 15-16 students in each group. A clinical topic is allotted to each group under one facilitator. The case is discussed in 4-5 settings. Feedback was taken from students and then analyzed.

Results: Students’ approach toward PBL was very positive. According to 77% of participants, the extent of coverage of the topic was very good. Most of the students opined that the mode of conduction was good and they got additional knowledge from PBL. The depth of knowledge of the facilitator was very good and they

developed a good rapport with teachers. They took lots of effort to understand the topic and liked this T-L method more. They expressed the desire to continue the PBL but it should not replace didactic lectures.

Keywords: Problem based learning (PBL), T-L (Teaching-Learning) methods, Anatomy, curriculum, facilitator.

Introduction

Over the years various studies convinced us that traditional discipline-based curriculum in medical education is dehumanizing and demotivating. It is also convinced that students learn better when actively involved in their learning tasks and basic science would be better understood, remembered and subsequently applied if learned in a clinically relevant format¹.

Problem-based learning is a process of acquiring new knowledge based on the recognition of a need to learn. The problem comes first without advance readings, lectures, or preparation².

PBL is a learning approach in which students discuss the topic in small groups under the supervision of a

facilitator. In such an approach Professors serve as a facilitator who attempts to guide students to take responsibility for their learning³.

The problems which are posed to stimulate students' interest will act as "lid openers". It acts as a challenge which makes the starting point of active learning⁴.

It gives a holistic approach with a good understanding of the subject. It is a type of self-directed learning. In this, students increase their skills in academics, self-efficacy and integration of knowledge and get a tendency towards becoming lifelong learners. It helps in critical thinking and teamwork and motivates students to learn anatomy. The participated students benefited from small group work and active learning. They utilized their previous knowledge and developed instructional concepts. They also benefited from autonomous learning with managed work time, and final assessment of their learning.

PBL is student-centred where the student is an active participant. Students learn to use libraries, websites and other available sources and information gained like this is retained for a longer time.

Anatomy is the basic foundation subject in the medical curriculum and most of the clinical subjects are based on a thorough knowledge of anatomy hence anatomy is to be understood in depth. The application of anatomical principles in the explanation of clinical signs and therapeutic procedures enhances the motivation of students to learn anatomy. As a result of this reform, PBL is a pedagogical method that appeared a few decades ago⁵.

The PBL was first utilized in 1960 by the Mc Master University of Canada in the instructions of medical students. Later on, it was successfully used as an educational tool for nursing, dentistry, pharmacy, veterinary medicine and public health professional programmes².

The PBL sessions make students enjoy by process of learning and give them a good feeling of confidence as problem solvers. PBL sessions allow the students to improve their problem solving, creative thinking and critical thinking skills⁶.

As per the Medical Council of India's vision 2015 document, an Indian Medical Graduate is expected to have self-directed learning skills and problem-solving skills where students should know how to use learning resources⁴.

It is found that PBL is student-centred and motivational hence we have planned to conduct PBL in our Department of Anatomy at MGM Medical College and Hospital, Aurangabad, Maharashtra from 2017 to 2019 and the student's perspective is determined.

Objectives

- Introduction of PBL to I MBBS students
- Estimate learning outcome
- Estimate the perspective of students regarding PBL as a T-L method

Materials and Methods

The present study was conducted in the Department of Anatomy at MGM Medical College, Aurangabad, Maharashtra after taking Ethical committee approval. Students are randomly distributed into ten groups, each group containing 15-16 students.

We sensitized students about the PBL procedure in detail. The concept of leader, reporter, timekeeper and facilitator was cleared to all participants. We gave a clinical case based on the anatomical system. They are advised to refer to textbooks, reference books, and the internet for collecting materials. Students can use models, composite specimens, charts etc for discussion.

The topic is then analyzed in 4-5 sittings. At the end of the session, the facilitator concluded the component of PBL. Lastly, feedback was taken from students regarding

PBL. Various parameters were discussed in the feedback form like

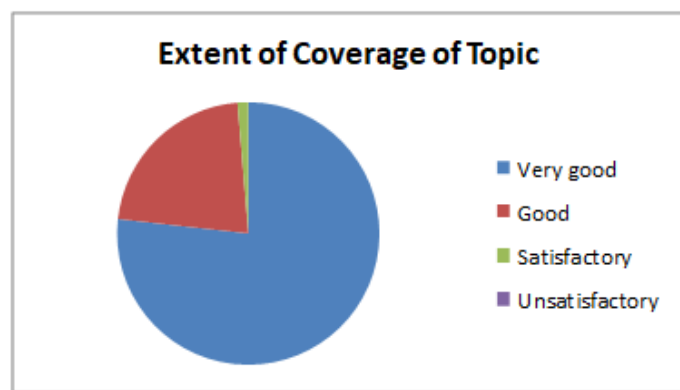
- The extent of coverage of the topic
- Applicability /relevance to the subject
- Depth of knowledge of the facilitator
- Mode of conduction
- Extent of effort
- Degree of satisfaction with this T-L method
- Score the benefit of PBL in understanding the topic after the didactic lecture
- Additional knowledge gained by PBL

Results

The study was conducted for three years from 2017 to 2019. 456 students participated in it. After completion of PBL, the feedback was taken from participants in the form of various parameters as well as scoring was done on certain questions.

Table 1: Feedback of different parameters

Parameters	Very good	Good	Satisfactory	Unsatisfactory
The extent of coverage of the topic	350 (77%)	100 (22%)	6 (1%)	0
Applicability/relevance to the subject	329(72%)	123 (27%)	4 (1%)	0
Depth of knowledge of the facilitator	337(74%)	110 (24%)	9 (2%)	0
Mode of conduction	301 (63%)	145 (32%)	10 (22%)	0



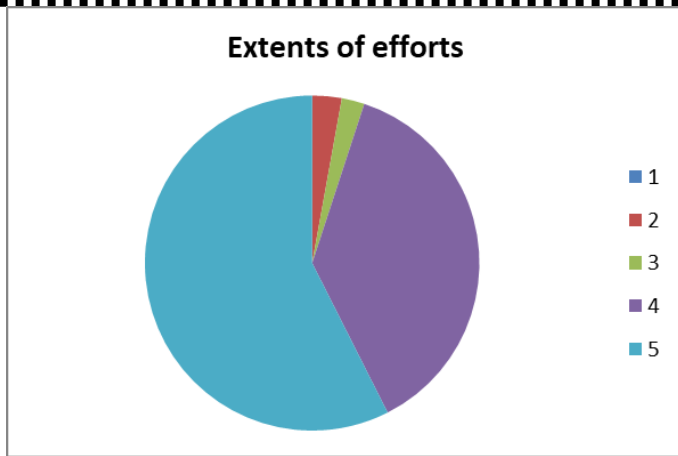
Graph 1

The following observations can be drawn:

- According to 77% of participants, the extent of coverage of the topic was very good.
- 72% of participants opined that the topic was appropriate to understand the relevance of learning anatomy to great extent.
- 74% of participants reported that the depth of knowledge of the facilitator was very good.
- The mode of conduction was very good according to 63% of participants.
- Not a single participant was unsatisfied with PBL
- 57% of participants commented that the extent of effort by students was very good.
- 66% of participants told that after PBL they found the same topic in didactic lectures more interesting.
- 64.5% of participants felt that through PBL they gained additional knowledge about the subject.

Table2: Scoring of different parameters

Scoring(1-5)(1-min,5-max)	1	2	3	4	5
Extent of efforts	0	13 (3%)	10 (2%)	171 (38%)	262 (57%)
Degree of satisfaction	0	8 (2%)	19 (4%)	136 (30%)	293 (64%)
Score the benefit of PBL in understanding the topic after didactic lectures	5 (1%)	6 (1%)	8 (2%)	135 (30%)	302 (66%)
Additional knowledge gained by PBL	8 (2%)	6 (1%)	7 (1.5%)	141 (31%)	294 (64.5%)



Graph 2

Discussion

PBL is a very effective educational tool to make students participate actively. PBL improves the problem-solving skills of students. Students also learn to work in groups. In this study, students agreed that PBL helped them in self-study and acquiring in-depth knowledge on the subject. As per the report of Finch, PBL improves the cognitive skill of students which are related to patient management⁴. PL Nandi and his associates pointed out that the PBL curriculum improved teacher-student relationship⁷.

In our study, students agreed that though PBL is time-consuming, the interaction with teachers was better in it and so it should be included in our curriculum. This was, in contrast, to a study by Nanda B, Manjunatha S in which it was looked at from a perspective of waste of time⁸.

In our study, 72% of participants opined that PBL helped to understand the relevance of learning anatomy to a great extent which is approximately similar to the study done by Dr Anudha Govindarajan and Dr Jamuna Meenakshisundaram⁴.

Students also opined that during PBL sessions they got more knowledge, enhanced their skills of integration of basic science concepts into the clinical problem and improved their communication which is similar to the

study done by Dope Santoshkumar, Mungal Shreechakradhar and P.R.Kulkarni⁹.

In our study, 74% of participants opined that knowledge of the facilitator was very good which was in contrast with the study done by Arunita T. Jagzape, Tripti Srivastava et al where students demanded more involvement and guidance from the facilitator in PBL¹⁰.

In our study, 64.5% of participants commented that they gained additional knowledge through PBL which was similar to the study by Dr Mungal Shreechakradhar U., Dr Santoshkumar Dope et al¹.

According to 63% of participants, the mode of conduction of PBL was “very good” and 77% of participants commented that the extent of coverage of the topic was also “very good”. Most of the students were satisfied with this T-L method. These parameters that are considered in our study are not discussed by any author previously and hence we can't compare them.

Most of the students want to continue PBL in their curriculum but they don't want to replace didactic lectures.

Conclusion

PBL is considered a better teaching-learning tool to make students understand the relevance of learning anatomy in the clinical context which creates interest and motivates them to learn.

It makes the student a lifelong learner. It helps in developing problem-solving attitude, and analytical skills and gives a better understanding of group dynamics.

Limitations

- Time-consuming.
- Requires trained facilitator for designing and facilitating sessions.
- Only clinically relevant topics can be taught.
- More expensive and requires more human resources.

References

1. Dr Mungal Shreechakradhar, Dr Santoshkumar Dope, Dr Sushil P Dube, et al. Introduction of Problem Based Learning as an innovative T-L method in Physiology at Dr Shankarrao Chavan Govt Medical College, Nanded. IOSR Journal of Dental and Medical Sciences, vol: 9; Issue 6; PP08-12;sept-oct 2013.
2. Usha Adiga and Sachidananda Adiga. Review Article, Problem Based Learning. International Journal of Current Research. Vol. 7, Issue 06, pp 17181-17187, June 2015.
3. Dr T.L.S. Gowri¹ Dr V.Janaki² Dr Chandra sekhar³.Problem Based Learning in I MBBS Anatomy. IOSR Journal of Dental and Medical Sciences (IOSR-JDMS). Volume 15, Issue 2 Ver. IX (Feb. 2016), PP 15-18.
4. Dr AmudhaGovindarajan, Dr Jamuna Meenskshisundaram. Effect of Problem Based Learning among First-Year under Graduate Medical Students of India in Anatomy. Indian Journal of Applied Research.volume:6|Issue:11|Nov.2016.
5. Philippe Manyacka MA Nyemb¹ ². Studying anatomy through a problem-based learning approach. MOJ Anatomy & Physiology.Volume 4; Issue 5 – 2017.
6. Omer Abdelaziz Musa¹,Ibrahim Abdelrhim Ali² *, Magbola Mohammed Hussein³, Omer Alaadil Ahmed Hamid⁴ and Bashir Hamad⁵. Modified Problem Based Learning MPBL: A New Approach in Medical Education. Journal of Medical Education and Training2020. Vol 4, issue 1.
7. PL Nandi, JNF Chan, CPK Chan, P Chan, LPK Chan. “Undergraduate medical education: comparison of problem-based learning”. BMC Medical Education 2009, 9:66
8. Nanda B, Manjunatha S. Indian Medical Students ‘perspective on PBL experiences in the undergraduate curriculum: one size does not fit all.J Educ Eval Health Prof.2013;10:11.
9. Dope Santoshkumar, Mungal Shreechakradhar and P.R.Kulkarni. Introducing Problem Based Learning for First MBBS Anatomy Students.IJHSR,Vol:3;issue:4; April 2013
10. Arunita T. Jagzape,Tripti Shrivastava et al .Problem based learning as a learning tool: Learners’ perspective of an Indian medical school. National Journal of Physiology, Pharmacy and Pharmacology; Vol 5\Issue 4\2015;PP 291-295.