



**ORIGINAL RESEARCH PAPER**

**Physiology**

**COMPARISON OF THE PERCEPTION OF PROBLEM BASED LEARNING APPROACH WITH CONVENTIONAL 'TUTORIALS' FOR SMALL GROUP TEACHING IN PHYSIOLOGY**

**KEY WORDS:** Problem based learning, feedback, strategic learning, and clinical concept

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**ABSTRACT**

**Introduction-** Problem based learning format that focuses on improving students' ability in clinical problem solving and decision making skills. **Material & Methods-** ninety nine students participated in the study. They were introduced and oriented to the concept of Problem based learning. Problem based learning related to tutorial topic was prepared. Student attain problem based situation and conventional tutorial on same topic. Feedbacks in the form of questionnaire were obtained from student. **Result** - most of the feedback form from participants agreed that Problem based learning module is helpful in development of critical thinking, in terms of self-directed learning and developing communication skills. It also provokes interest in the subject and helps in deep and strategic learning and in strengthening the clinical concept. **Conclusion-** from the present study, it can be concluded that experiential learning allows students to develop both their knowledge and skill set by solving real-world professional problems.

**INTRODUCTION-**

In last few years to improve the quality of medical education and to deal with emerging changes in today's society it may require a revision of present system of education in such a way that students of health profession are trained to deal with problems of future preparing themselves to become problem solver, rather than more or less passive recipient of information. Basic science teaching and clinical education should be integrated whenever appropriate to promote their application to clinical problem solving.<sup>1</sup>

Problem-based learning (PBL) is results from the process of working towards the understanding or resolution of a problem. Problem-based learning (PBL) is considered as an instructional approach that may solve some of the important problems of medical education such as difficulties encountered by the students to use knowledge gained in a clinical setting, the lack of integration of the knowledge acquired in the different discipline and need of continuing education.

PBL is an instructional approach that uses patient vignettes to prepare students for clinical training, linking theory to practice. PBL uses an inquiry-based method where learners work independently or in groups participating in clinical reasoning by collecting clinical data (H&P), determining differential diagnoses, ordering and interpreting clinical tests, and constructing a management plan. Problem vignettes are selected to meet specific clinical reasoning learning objectives, guided by faculty. Problem Based Learning is similar to PBL. However, PBL is generally more structured, relying on a guided inquiry model where learners are directed through a series of steps that model clinical practice while receiving feedback to hone decision-making accuracy. PBL influences knowledge gaining in clinical contexts, development of clinical reasoning skills and self-directed learning skills, PBL patient vignettes may be text-, computer-, or video- based, or use other forms of simulation based training (SBT).

Problem -based learning (PBL) is frequently used to teach clinical reasoning. Problem based learning is assumed to

foster increase retention of knowledge, to improve student's general problem solving skills, enhance integration of basic concepts into clinical problems, encourage self-directed learning skills and strengthen student's intrinsic motivation. It sensitizes the students of health profession to deal with problems of in future preparing themselves to become problem solver, rather than more or less passive recipient of information.

**MATERIAL & METHOD-**

The project discussed with Head, Department of Physiology and permission was taken. The permission from the Institutional Review Board, M.G.M. Medical College, Indore, M.P. was taken. The problem related to tutorial topics and questions for discussion are prepared.

Based on the scheduled tutorial topic a 'problem based situation' is given in printed form, 5 min. will be given to student to understand the problem and questions related to the problem and tutorial topic will be discussed.

During the tutorial session 'problem based situation' related to the scheduled tutorial topic was given to the students of one batch (out of 5 tutorial batches) and other batches had the conventional tutorial discussions.

Questions related to problem base situation were asked to one 'problem based learning' batch and questioning/ discussion by 'traditional tutorial' (instructional method) will be followed for other remaining four batches.

Feedback in the form of questionnaire were obtained from both i.e. one 'problem based learning' batch and one 'tutorial batch' (out of 5 tutorial batches) after sessions, and compared.

In the same way 'problem based approach' was followed for other batches (turn by turn by rotation) for other tutorial topics, feedback was obtained and compared.

**Inclusion Criteria:**

All students of current MBBS course got the equal opportunity to participate by rotation.

**Exclusion Criteria:**

Students, who were absent during these tutorial/ PBL session sessions were automatically excluded from the study.

**OBSERVATION & RESULT**

**Table- 1: Showing responses of students regarding PBL as a better method of teaching/learning than the conventional tutorial method.**

S. No.	Response	Number of Students	Percentage
01.	Strongly disagree	2	2.0
02.	Disagree	1	1.0
03.	Neither agree nor disagree	0	0
04.	Agree	46	46.5
05.	Strongly agree	50	50.5
	Total	99	100.0

97% student responded that PBL as a better method of teaching/learning than the conventional tutorial method

**Table-2: Responses Of Students Regarding Role Of PBL In Promoting Their Self-study And Problem-solving Abilities**

S. No.	Response	Number of Students	Percentage
01.	Strongly disagree	1	1.0
02.	Disagree	0	0
03.	Neither agree nor disagree	1	1.0
04.	Agree	44	44.5
05.	Strongly agree	53	53.5
	Total	99	100.0

98% student agree that PBL is useful in promoting their self-study and problem-solving abilities

**Table-3: Showing Responses Of Students PBL Helps In The Recall And Application Of Basic Sciences To The Given Clinical Scenario**

S. No.	Response	Number of Students	Percentage
01.	Strongly disagree	3	3.0
02.	Disagree	0	0
03.	Neither agree nor disagree	0	0
04.	Agree	45	45.5
05.	Strongly agree	51	51.5
	Total	99	100.0

97% student inform that PBL helps in the recall and application of basic sciences to the given clinical scenario.

**Table-4: Responses Of Students Showing PBL Is Helpful In Better Retention Of Knowledge.**

S. No.	Response	Number of Students	Percentage
01.	Strongly disagree	1	1.0
02.	Disagree	0	0
03.	Neither agree nor disagree	5	5.0
04.	Agree	41	41.5
05.	Strongly agree	52	52.5
	Total	99	100.0

94% student marked that PBL is helpful in better retention of knowledge.

**Table-5: Responses Of Students Showing PBL Is Helpful In Improving Communication Skills Of The Students.**

S. No.	Response	Number of Students	Percentage
01.	Strongly disagree	1	1.0
02.	Disagree	1	1.0
03.	Neither agree nor disagree	6	6.1
04.	Agree	47	47.5
05.	Strongly agree	44	44.5

Total	99	100.0
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97% student reported that PBL is helpful in improving communication skills

**Table-6: Responses Of Students Showing PBL Is Helpful In Understanding The Group Dynamics.**

S. No.	Response	Number of Students	Percentage
01.	Strongly disagree	2	2.0
02.	Disagree	3	3.0
03.	Neither agree nor disagree	9	9.1
04.	Agree	65	65.7
05.	Strongly agree	20	20.2
	Total	99	100.0

75.9% agreed that PBL is helpful in understanding the group dynamics while 9% where neither agree nor disagree

**Table-7: Showing Responses Of Students About PBL Deprives Students Of An Opportunity To Acquire Knowledge From Experienced And Good Teachers.**

S. No.	Response	Number of Students	Percentage
01.	Strongly disagree	5	5.1
02.	Disagree	31	31.3
03.	Neither agree nor disagree	6	6.1
04.	Agree	29	29.3
05.	Strongly agree	28	28.3
	Total	99	100.0

57.6% noted that PBL deprives students of an opportunity to acquire knowledge from experienced and good teachers while 31% disagree with this.

**Table-8: Showing Responses Of Students PBL Gives An Opportunity For Even Staff Members With Poor Teaching Skills To Be Good Facilitators.**

S. No.	Response	Number of Students	Percentage
01.	Strongly disagree	0	0
02.	Disagree	5	5.1
03.	Neither agree nor disagree	18	18.2
04.	Agree	50	50.5
05.	Strongly agree	26	26.3
	Total	99	100.0

76.8 % reported that PBL promotes staff members with poor teaching skills to be good facilitators

**Table-9: Showing Responses Of Students Showing PBL Facilitates A Better And Healthy Teacher-student Relationship.**

S. No.	Response	Number of Students	Percentage
01.	Strongly disagree	1	1.0
02.	Disagree	0	0
03.	Neither agree nor disagree	5	5.1
04.	Agree	56	56.6
05.	Strongly agree	37	37.4
	Total	99	100.0

94% student thinking that PBL facilitates a better and healthy teacher-student relationship.

**DISCUSSION-**

For MBBS student in their vary first year physiology a descriptive subject for learning. How to make it interesting and easy for better understanding is a difficult task as it is very comprehensive in nature. Though when normal physiology is well understood by student they easily grasp patho physiology which is the major part in diagnosis making and treatment. The conventional teaching method is lecture-based learning, which requires teachers to give didactic lectures strictly following the rationales on textbooks and the

degree of student generally relies upon the nature of instructor focused presentations.<sup>2,3,4</sup> So we started Problem -based learning (PBL) approach as alternative tool to study whether it is good for enhancing student's perception for better understanding than traditional teaching method. PBL needs some advanced preparation by the learners and provides a more structural strategy for learning. Based on the teacher's teaching purpose, it combines theory and practice completely, takes the related problems as the basic teaching material, simulates a real environment, and leads the students to return to some special scenes in the real life.<sup>5</sup> Through the multi-direction communication between students and teachers, combined with their own theoretical basis, through observation, analysis, judgment, interacting, reviewing ultimately decision-making to achieve integration, flexible use of knowledge teaching methods.

Team work and group discussion also improves better understanding of the given topic. It will motivate them to read more. Students also agreed that PBL helped them to memorize the information easily and also increased their group interaction and made clinical learning easier and enjoyable. This method also increased their sensitivity towards solving patient's problem. It was also observed that PBL not only enhances subject knowledge but also helped the students towards good diagnosis, good communications, listening skills, counselling, team work and also leadership skills. PBL is an alternative and excellent learning strategy for medical students at undergraduate level education as well as for professional development.<sup>6,7</sup> It focuses on developing students' ability to analyze and solve problems and aims at improving students' flexible use of relevant knowledge and skills to solve problems. Compared with traditional one-way teaching, problem teaching is more practical. At the same time, due to the active participation of students, PBL can achieve better teaching results.<sup>8,9</sup>

Present study also confirms the application of problem based learning as better method of teaching/learning than the conventional one also it promotes self-study and problem-solving abilities of the students. Also we found PBL helps in the recall and application of basic sciences to the given clinical scenario with great retention of knowledge. PBL helps in improving communication skills of not only the students but also gives an opportunity for even staff members with poor teaching skills to be good facilitators and enhance PBL facilitates a better and healthy teacher-student relationship.

### CONCLUSION-

From the present study, it can be concluded that experiential learning allows students to develop both their knowledge and skill set by solving real-world professional problems. Problem -based learning is one form of experiential learning in which students collaborate in a small group environment to work through patient problems. By placing the knowledge in a clinical context, students are thinking as professional clinicians.

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