

Problem-based learning: A critical review of its educational objectives and rationale for its implementation in higher education institutes of Pakistan

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Problem-based learning (PBL) was pioneered as an innovative teaching methodology by Barrows and Tamblyn in 1960 at the McMaster University in Hamilton. So effective was this teaching approach that Thomas Corts of Samford University called PBL "a newly recovered style of learning".¹ PBL was later refined and adopted with much broader applications, and in the process received a wider popularity.

PBL has stood the tides of time, proving to be highly effective in promoting active learning, collaboration, critical thinking and communication skills in the learners. It was developed to rouse the learner to hone his/her skills as a future physician. PBL inculcates motivation, induces learning drive and helps tackle real-life medical problems. So effective is the PBL as a teaching strategy that it has now been adopted in myriad of institutions worldwide.² According to Harden and Davis (1998), PBL portrays different things in different medical institutions. The defining characteristics of PBL, however, remain involving a small group of students, presented with a real-life problem, identification of the pertaining issues, finding resources, discussing, pondering, debating and ultimately reaching a logical solution in a structured manner. The underpinnings for PBL are to identify a solution to a clinical presentation representing a real-life problem. True to pedagogical approach, there is no tailor-made approach to reaching a solution to the issue at hand. Despite PBL entailing more than one way of reaching a solution, all approaches remain instrumental in stimulating team work and inciting principles of adult learning.

PBL is a student-centered pedagogical approach, whereby the learner learns through self-directed and structured effort, mixed with a flavour of teamwork, to solve problems. As earlier defined, absence of a pre-defined solution to the problem is the hallmark of PBL. It, instead, acuminates knowledge, skills and attitudes, mixed with problem-solving skills required of a physician to solve problems encountered in the real world. Group

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collaboration, team work and communication skills are additional competencies acquired by the learners engaged in PBL.

The Maastricht University has designed PBL process in a series of steps, commonly known as the 'seven jumps. These include (i) clarifying the terms, (ii) defining the problems, (iii) brainstorming, (iv) structuring and hypothesis, (v) learning objectives, (vi) self-study, and (vii) synthesis.³ Recently an addition jump has been included called the feedback. PBL starts with the participants asked to read material pertaining to the problem and come prepared for the topic which already has been outlined to the students. The information gained by mutual discussion amongst the students leads to the resolution of the problem. The tutors are normally subject specialists. However, in Maastricht University, tutors having format expertise were given preference over subject experts, as it is conceived that the former will be less intruder than the later. The entire process is based on constructivism, a 180 degrees paradigm shift from traditional learning! The construct of PBL is different from traditional teaching; PBL promotes traits such as life-long learning through the process of inquiry and constructivist learning, something traditional teaching is devoid of.

Implementation of PBL is no easy task. It demands resources, planning, organization, trained faculty, infrastructure and collaboration amongst different disciplines.⁴ Commissioning of PBL demands following steps:

- ◆ Seeking faculty's approval for PBL
- ◆ Establishing a robust curriculum committee and working group
- ◆ Designing the new PBL curriculum and defining educational outcomes
- ◆ Seeking advice from experts in PBL
- ◆ Planning, managing and organizing, including ensuring availability of resources, finances and infrastructure
- ◆ Training PBL facilitators and defining the objective(s) of the facilitator

- ◆ Introducing students to the PBL programme.
- ◆ Using e-learning to support the delivery of the PBL programme
- ◆ Re-defining assessment to suit the PBL curriculum
- ◆ Encouraging feedback from the students and teachers
- ◆ Managing facilities that support the self-directed learning
- ◆ Continuing evaluation and ensuring changes made from time to time

A dedicated faculty and administration is needed to sustain PBL in any institution. Tutorial difficulties, including faculty desperation for not being in the "driver's seat" leads to frustration that needs to be addressed promptly and effectively. One has to seek support and acceptance from the learners in order to generate their interest for this new modality. Avoidance of conflict and disinterest amongst the students is another problem requiring timely handling. In addition, one has to identify and confide on local resources of logistics for consistent PBL delivery.⁵

Despite all odds, challenges and difficulties, PBL has proved to be highly effective in promoting active learning, development of communication and critical thinking.⁶ Evaluations consistently show that students actually enjoy PBL and derive immense learning benefits and opportunities from well-constructed problem.⁶ The principle of PBL have been applied in variety of other health-related disciplines.⁷ These problems are presented to the students to solve prior to imparting the required scientific knowledge or any other information needed to

solve the problem.⁸ It is imperative to acknowledge that PBL underscores the importance of prior knowledge.⁹ The students then acquire further knowledge on "need to know" basis, enabling them to identify their own learning needs. In such a situation, any knowledge gained is used in problem solving.¹⁰ In this way PBL allows the learner to identify learning topics based on the discipline-related problems. The advantage of this approach enhances motivation.^{11,12}

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