

Problem-Based Learning

Description Problem-based learning (PBL) is characterised by the use of real-life and ill-structured scenarios, those that are complex and generally have multiple responses as starting materials instead of the teacher simply assigning readings, providing lectures or walking students through a solution. Students identify problems associated with the scenario and use these problems to drive their learning process. Their inquiry and exploration leads to learning key concepts, principles, content knowledge, and strategies necessary to solve the challenges presented by the problem. The teacher's main role is to support student inquiry.

Example 1 Pure PBL

- In the first session, present the problem case scenario to the students. Identify and clarify unfamiliar terms presented in the scenario.

☞ The Problem ☞

A Memo from the Manager of Coronary Care Unit dated July 16, 2004:

Recently our hospital admitted a 40-year-old Chinese female by the name of AhYan, who lost 50 lbs in 6 months. Her previous weight was 160 lbs. Her primary physician admitted her with the diagnosis of malnutrition. She thinks she looks wonderful and is happy that she can wear a size 5 dress. Her haemoglobin was 3.3 and hemocrit 17. Patient shows little concern with her diagnosis. She has visual signs and symptoms of someone malnourished. I am requesting a comprehensive evaluation of her condition and interventions to assist her with future diet and weight management. I would like to have the evaluation by July 31, 2004. Thanks again for any assistance you can offer.

- When encountering the authentic scenario, students have to define the problem(s) and identify the issues to be discussed. They formulate learning objectives and research consensus on appropriate and achievable learning objectives. After class, they conduct private study.
- In the following session, students bring in and share the results of their private study. They discuss to reach the best solutions, present them and justify them altogether. Then they keep revising hypotheses through the application of newly acquired knowledge. In the process, the tutor prompts them for more clarifications and explanations. At the end, the tutor lists the concepts missed and the pertinent data that contribute to finding the best solutions.

Example 2 Hybrid PBL

- In the first session, the teacher gives a mini lecture on the theories and principles.
- Then the teacher presents the problem case scenario which is written around the theories and principles covered in the mini lecture.
- When encountering the authentic scenario, students have to define the problem(s) and identify the issues to be discussed. They examine the details with reference to the theories and principles learned in the lecture.
- Students discuss to reach the best solutions, present them and justify them altogether. Then they keep revising their hypotheses through the application of newly acquired knowledge. In the process, the tutor prompts them for more clarifications and explanations. At the end, the tutor lists the concepts missed and the pertinent data that contribute to finding the best solutions.

- How Active?**
- Pure PBL is an excellent example of active learning that engages students vigorously in problem formulation, information seeking and actual problem solving. On the other hand, students in hybrid PBL approach the problem issues with basic knowledge given by the teacher in the mini lecture.
 - Both examples illustrated above are able to reinforce the inquiry process in which students think critically and deeply about the problem and issues and apply knowledge to situations. These inquisitive activities are effective in promoting student's deep thinking and convergent thinking.
 - The entire process of PBL is a big task in itself. The task is to solve the ill-defined problem through a range of different kinds of activities.
 - PBL develops students' collaboration and communication as they work together towards the best solutions.
 - PBL engages students in learning new knowledge through different types of activities that are similar to the ways in which they will be likely to recall and use it in future situations.

How Related to Real Life? PBL is renowned for its potential to bring authentic problems to the classroom. The key objective of PBL is to find appropriate solutions to the real, ill-defined problems that are happening in the professional context. The situation that occurs in pure PBL is closer to the real-world situation in which people have to solve immediate problems with very little information at hand. For this reason, pure PBL is more suitable for experienced learners while hybrid PBL is better for inexperienced learners.

What Learning Outcomes? PBL is recognised as highly appropriate for developing professional competence and a wide range of generic abilities. It develops deep understanding and the higher-order thinking skills of critical thinking, application and problem solving, etc. Students also learn to make use of different resources to solve real problems. It also provides conditions for the development and practice of self-directed learning while small groups provide conditions for the improvements in communication and teamwork skills.