

Problem Based Learning Learning Community (Apr 2025 - Feb 2026)

What is PBL?

Problem-based learning (PBL) is a learner-centered approach where students collaboratively analyze and solve problems, directing their own learning, working with peers, and engaging teachers as facilitators rather than primary knowledge sources. (Dolmans et al. 2015, 355; Hung et al. 2008, 488).

Problem-based learning began in medical education and has evolved into a flexible pedagogy, guided by principles that can be adapted in multiple ways. These principles can inform syllabus design.

Kinds of Problem

A well-structured problem has a clearly defined situation, established solution criteria, and typically a single correct answer.

An ill-structured problem is open-ended, with ambiguous criteria and multiple defensible solutions.

Our Learning Community believes that well-structured and ill-structured problems exist on a continuum from simple to complex, with instructional approaches potentially crossing over depending on problem complexity.

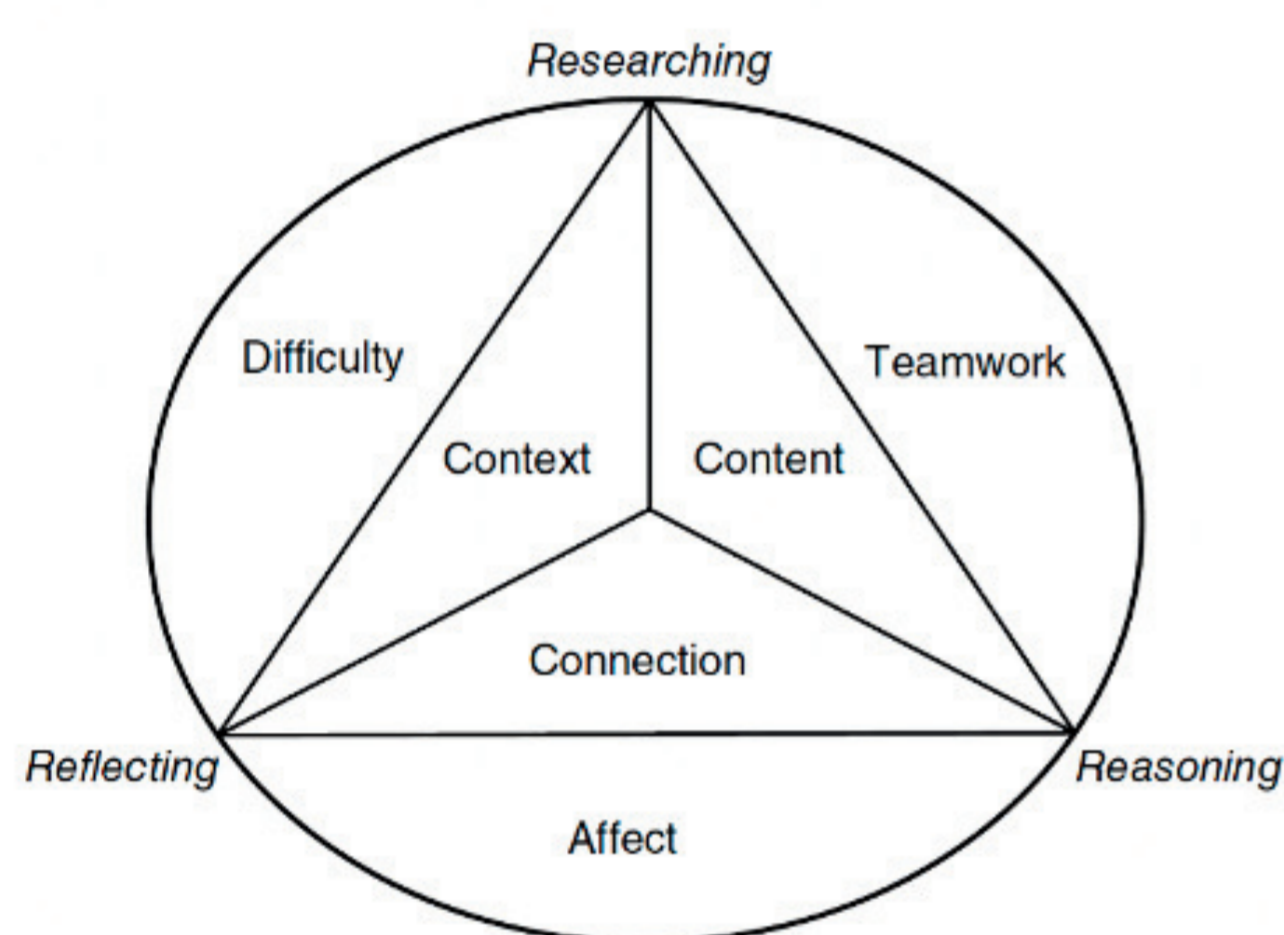
Instructional Design: Basic Commonalities and Differences

Regardless of whether a problem is well-structured or ill-structured, solving it involves two main steps:

1. Understanding the problem and the goal: students need to identify what the problem is about and what counts as a solution.
2. Developing and evaluating solutions: students need to explore ways to solve the problem and determine which solution(s) are appropriate.

The difference is that well-structured problems have clearly defined goals and typically one correct answer, whereas ill-structured problems require students to define the problem, consider multiple solutions, and justify their choice.

Problem Design



Conditions for the Effectiveness of PBL

PBL works best in courses:

- With 25 students or less.
- Centered on real-world problems and when learning outcomes involve real-world applications.
- Emphasizing analysis, application, evaluation, and synthesis of theories (rather than memorization).
- Where teaching focuses on guiding inquiry, asking questions and supporting exploration rather than delivering content
- Where discussion, peer learning and collaboration is encouraged
- Which use papers, projects, case analyses and reflections as assessment methods, instead of examinations

Members

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Reflection in PBL

Problem-based learning (PBL) is effective only when students are able to engage in reflection on their learning.

Reflection Type	Focus	When/Mode	Examples
Content Reflection	Examining one's understanding and conceptualizing of the content knowledge	Formative & Summative	Responding to prompts after completing readings; providing a diagram describing the solution
Process Reflection	Evaluating one's problem-solving and learning strategies (during problem-solving) and understanding how they can be reapplied in a different situation (after problem-solving)	Formative & Summative	Weekly reflections/journaling
Critical Reflection	Questioning one's previous assumptions and beliefs about both the nature of the problem as well as the solution(s) implemented	Summative	Pre and post-course or project reflections

Integration of PBL Principles among LC Members

1) Limitations of Full Problem-Based Learning Implementation

LC members generally find full PBL unsuitable, preferring more scaffolding than the self-directed model typically requires.

2) Partial Adoption of Problem-Based Learning Approaches

Some colleagues find structuring the syllabus around problem-solving meaningful, as it anchors theory and may boost motivation, with interest from others to adopt this approach. Several have also incorporated problem-based assignments or in-class exercises.

3) Strengthening Learning Support Strategies

Some members believe that it is beneficial to:

- Provide students with additional support, so that they can better understand the problem space (in the case of ill-structured problems).
- Encourage student ownership and self-regulation.
- Provide formative reflection exercises to help students develop self-regulation strategies. (see Section VII).

4) Blending PBL with Team-Based Learning (TBL)

Some colleagues are exploring combining PBL with TBL, while others prefer a structured TBL approach with selected PBL elements. TBL typically involves pre-class preparation, readiness assurance tests, feedback, and team-based application activities

Sources:
 Dolmans, Diana, Larry Michaelsen, Jeroen Van Merriënboer, and Cees Van der Vleuten. "Should we choose between problem-based learning and team-based learning? No, combine the best of both worlds!" *Medical teacher* 37, no. 4 (2015): 354-359.
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For more information on how to apply PBL, please kindly scan the QR code:

