

Center for Instructional Development and Research

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Information for People who Teach
at the University of Washington

Problem-Based Learning

"The basic principle supporting the concept of PBL is older than formal education itself; namely, learning is initiated by a posed problem, query, or puzzle that the learner wants to solve" (Duch, Groh, & Allen, 2001).

Here are a few examples of problems that have been used to structure teaching and learning in classes:

- Biology: Students examine the health claims of a widely advertised dietary supplement
- Art History: Students weigh competing evidence to determine whether a museum acquisition is real or forged
- Environmental Science: Students develop a preservation plan for a local forest

PBL overlaps with other active learning models such as groupwork and case studies, but is distinguished by the focus on having students delineate, research, and solve a realistic problem.

WHY USE PROBLEM-BASED LEARNING?

- PBL better prepares students to apply their learning to real-world situations.
- PBL enables students to become producers, rather than consumers, of knowledge.
- PBL can help students develop communication, reasoning and critical thinking skills.

HOW DOES PROBLEM-BASED LEARNING WORK?

What instructors do:

- Develop real-world, complex and open-ended problems such as might be faced in the workplace or daily life.
- Act as facilitators, making sure students are staying on track and finding the resources they need.
- Raise questions to student groups that deepen the connections they make among concepts.
- Strike a balance between providing direct guidance and encouraging self-directed learning.

What students do:

- Address the problem, identifying what they need to learn in order to develop a solution and where to look for appropriate learning resources.
- Collaborate to gather resources, share and synthesize their findings, and pose questions to guide further learning tasks for the group.

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HOW DO I GET STARTED WITH PBL?

Develop problems that:

- Capture students' interest by relating to real-world issues.
- Draw on students' previous learning and experience.
- Integrate content objectives with problem-solving skills.
- Require a cooperative, multi-staged method to solve.
- Necessitate that students do some independent research to gather all information relevant to the problem.

Design assessment tools that:

- Account for process (e.g. research, collaboration) as well as content skills.
- Are closely tied to course learning objectives.
- Balance individual and group performance.

WHAT KINDS OF CLASSES CAN PBL BE USED IN?

PBL has successfully been used in disciplines ranging from engineering to art history. When adapting PBL for your course, consider the following:

- An entire course can be PBL based, or PBL can be used for part of a given unit.
- Depending on your learning goals, it is possible to design problems with a narrow range of correct solutions (such as medical diagnoses) or with a wider range of creative possibilities (such as architectural designs).
- Though usually based in groupwork, PBL can also have individualized components, provided that students are required to come together to discuss their findings.

HOW CAN CIDR HELP?

At CIDR we can help you develop and implement strategies for adapting the principles of problem-based learning to your specific teaching situation. Call or e-mail to arrange an appointment.



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CIDR promotes excellence in teaching and learning at the University of Washington through its work with individual faculty and TAs, departments, campus-wide initiatives, and University leaders. CIDR staff are available year-round to collaborate on the design, implementation, and assessment of ways to advance teaching and learning for all students in the diverse UW community. Consultations are confidential and offered at no charge to UW faculty, TAs, and departments.

If you have questions about teaching and learning, or you would like to find out more about working with CIDR, you can call us at 543-6588, send a message to cidr@u.washington.edu, or visit our web site:

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