Teaching Strategies: Problem-based Learning and Case-based Learning

Overview

Problem-based learning

Problem-based learning, or PBL, in its purest form, presents a fully-formed "real-world" problem to students at the outset of a course. Students then experiment and explore to solve the problem, with the instructor acting as a "guide" in the process, offering correction, focus, and assistance to guide inquiry.

During class time, the students are presented with a problem or issue that needs to be solved using the information they are learning about. As a group, they decide what they already know about the subject, determine what they need to know to solve the problem, apply suggested solutions to the problem, and analyze the results.

The four basic questions of problem-based learning are:

- What do you know (about the topic/problem/issue)?
- What do you need to know to solve the problem?
- How do you get that information?
- How do you apply the information to solve the problem?

Case-based learning

Case-based learning and problem-based learning are instructional strategies that uses the analysis of authentic, "real-life" scenarios or challenges as a means of demonstrating and/or building skills, competencies, and disciplinary intuition. Case-based learning tends to use cases as part of an integrated pedagogical strategy along with lectures, readings, and other instructional activities; once students have been presented with a theoretical framework they review a case and try to apply the principles to the case at hand, bridging theory and practice.

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Case Based Learning		Problem Based Learning
Structured scenario	⟷	Unstructured problem
Resources are largely provided or clearly signposted in advance	⟷	Students identify their own learning needs and seek resources in the light of the problem
Allocated roles (although not necessarily 'role play' in the sense of acting out those roles, rather thinking from the position of someone in the scenario)	⟷	No role play; students tackle problems 'as themselves'
Short time frame – e.g. 1 x 3 hour session	⟷	Longer time frame (Up to a term)
Learning tool designed to deliver specified learning outcome(s)	⟷	Learning process as an end in itself – outcome not necessarily specified in advance
Used within traditional academic structures (e.g. of assessment)	⟷	Seen to challenge traditional academic structures (e.g. disciplinary boundaries; assessment; role of tutor)

From: Hale, S. (2006). Politics and the real world: A case study in developing case-based learning. European Political Science, 5(1), 84-96. doi:10.1057/palgrave.eps.2210060

Quick Start Guide - PBL 101

Employing this strategy can be rewarding but takes careful planning to give your students the tools they need to solve the problem - we have created a planning document that walks you through the steps to creating a comprehensive lesson based on PBL, that can be found here: Problem-based instruction planning template.

Quick Start Guide - Case-based Learning 101

Employing this strategy can encourage critical thinking in students as they comprehensively analyze a case while connecting it to the content. To help you develop the most robust case-based lesson possible, ATS has created a planning document that walks you through the steps to creating a case-based lesson: Case-based instruction planning template

Variations

This section outlines how you might begin to think about adopting the aforementioned teaching strategies and the tools you might consider to employ.

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Problem-Based Learning:

- Project-based learning, also called PBL, uses extended projects such as problems, questions or challenges to help students gain knowledge or explore information.

Project Based Learning vs. Problem Based Learning	
Similarities	
Both PBLs: • Focus on an open-ended question or task • Provide authentic applications of content and skills • Build 21st century 4 C's competencies • Emphasize student independence and inquiry • Are longer and more multifaceted than traditional lessons or assignments	
Differences	
Project Based Learning	**Problem Based Learning**
Often multi-disciplinary	More often single-subject
May be lengthy (weeks or months)	Tend to be shorter
Follows general, variously-named steps	Follows specific, traditionally prescribed steps
Includes the creation of a product or performance	The "product" may simply be a proposed solution, expressed in writing or in an oral presentation
Often involves real-world, fully authentic tasks and settings	More often uses case studies or fictitious scenarios as "ill-structured problems"

From: Larmer, John. Project-Based Learning vs.Problem-Based Learning vs. X-BL

- Online collaborative tools are useful for Problem-based learning. One Drive allows students to share documents in the cloud. Mindmapping tools can help students brainstorm and create logic chains to solve the problem.

Case-based learning:

- For those in education, the PELP framework is a useful tool to evaluate cases. Instructional Desig Services has developed a PELP Framework Case Selection Guide and PELP Framework Activity Guide (for students)
- Games and simulations are a way to get students to think through case scenarios and to create logic chains.
- Case-based learning and problem-based learning do not need to be exclusive. Cases and scenarios can often be the basis for the problem in problem-based learning.
- Case studies from the National Center for Case Study Teaching in Science
- A Journal of Teaching Cases in Public Administration and Public Policy, University of Washington
- Real-life cases can often be found in newspapers, journals and social media sites. College of Business faculty have access to real-life scenarios from the Wall Street Journal. ATS has created a WSJ Instruction Template to walk you through using the Wall Street Journal in your lesson.

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In the Library

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