What Is PBL? Why PBL?

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“Implementing Problem-Based Learning”
Teaching Center/General Education Workshop at Belmont University

www.udel.edu/pbl/belmont
The Way It Was...
1973

scientific calculators,
graphing calculators,
laptops and notebooks,
PDAs

tablet PCs,
gigabytes and gigahertz,
ubiquitous computing

2008

Computation and Calculation
The Way It Was...
1973

- e-mail,
- voice-mail,
- chatrooms,
- cell phones,
- text messaging,
- instant messaging,
- blogging,
- wireless connectivity

2008

Communication and Collaboration
Online Information: 
web catalogs, networked databases, Britannica Online, online newspapers, course websites, CMS and LMS, podcasting, wikis

Collections and Connections
Teachers (*Digital Immigrants*) may assume that students (*Digital Natives*) are the same as they were - that the same methods that worked for them when they were students will work for their students now.

But that assumption is no longer valid.

*Digital Natives, Digital Immigrants*, by Marc Prensky
An important question:

Given the amazing advances in technology

and the dramatic change in the environment of our students,

Can we afford to continue teaching the way we were taught?
First, a quick exercise:

1. Individually, write down several words or short phrases that come to mind when you think of:
   
   **Student-Centered Learning**

2. In pairs or small groups, select three “most important”.

3. Finally, report out just one.
...the individuals learning the most in the typical classrooms are the teachers there. They have reserved for themselves the very conditions that promote learning:

- actively seeking new information,
- integrating it with what is known,
- organizing it in a meaningful way, and
- explaining it to others.

Page 35, Huba and Freed, *Learner-Centered Assessment on College Campuses: Shifting the Focus from Teaching to Learning*, 2000
What Is PBL?

“The principal idea behind PBL is that the starting point for learning should be a problem, a query, or a puzzle that the learner wishes to solve.”

Deflating Grady – Part 1

Read over the e-mail exchange and discuss the ideas it raises about grade inflation.

As a group, compose a definition of grade inflation and be prepared to present it.

Be prepared to “report out” in 10 minutes
Deflating Grady – Part II

Read over the information presented, and be prepared to report out on your responses to questions 1 and 2.

*Be prepared to “report out” in 10 minutes*
Characteristics of Good Learning Issues

Presented in the form of a question or series of questions.

Focused so that it seeks specific information.

Constructed so that it asks an answerable question.

Pursues information that is relevant to the problem.

Goes beyond superficial knowledge to probe conceptual issues.

Often set in a context that provides direction. Why is the question important?
What are the Common Features of PBL?

Learning is initiated by a problem.
Problems are based on complex, real-world situations.
All information needed to solve problem is not given initially.
Students identify, find, and use appropriate resources.
Students work in permanent groups.
Learning is active, integrated, cumulative, and connected.
A Typical Day in a PBL Course
PBL: The Process

Presentation of Problem
Organize ideas and prior knowledge (What do we know?)
Pose questions (What do we need to know?)
Assign responsibility for questions; discuss resources

Resolution of Problem; (How did we do?)
Integrate new Information;
Refine questions
Reconvene, report on research;
Research questions; summarize; analyze findings

Next stage of the problem
PBL Contrasted with Subject-Based Learning

START

Given problem to illustrate how to use it

Told what we need to know

Learn it

PBL Contrasted with Subject-Based Learning

Characteristics Needed in College Graduates

- Excellent communication skills
- Ability to define problems, gather and evaluate information, develop solutions
- Address problems in a complex real-world setting
- Team skills – ability to work with others

In Knowledge Work …

The task is not given; it has to be determined.

There is usually no right answer; there are choices instead.

Peter Drucker
Post-Capitalist Society
Other Reasons for Using PBL?

Students learning to communicate in a common language.
International Islamic University of Malaya

Innovation and thinking ‘outside of the box’.
Republic Polytechnic, Singapore

Student engagement; learning ‘how to learn’.

Inquiry-based approach, bringing research-like approach to thousands of students.
“The principal idea behind PBL is that the starting point for learning should be a problem, a query, or a puzzle that the learner wishes to solve.”

*Boud (1985)*
UD PBL online

PBL at UD
   www.udel.edu/pbl

PBL Clearinghouse
   www.udel.edu/pblc

Watson homepage
   www.physics.udel.edu/~watson

This presentation
   www.udel.edu/pbl/belmont
Question for Groups

What challenges to PBL implementation exist for the undergraduate context?

*Be prepared to report out in 5-10 min.*
Factors in Choosing a Model

Class size
Intellectual maturity of students
Student motivation
Course learning objectives
Instructor’s preferences
Availability of peer facilitators
Common Classroom Models

- Medical school
- Floating Facilitator
- Peer Facilitator
- “Hybrid”
Medical School Model

- Dedicated faculty tutor
- Groups of 8-10
- Very student-centered environment
- Group discussion is primary class activity

A good choice for
- Highly motivated, experienced learners
- Small, upper-level seminar classes
Floating Facilitator Model

• More structured format: greater degree of instructor input into learning issues and resources
• Group size: 4-6

A good choice for
• Less experienced learners
• Classes of all sizes

• Instructor rotates through groups: Asks questions, directs discussions, checks understanding
• Other class activities:
  – Groups report out
  – Whole class discussions
  – (Mini-)lectures
Peer Facilitator Model

Advanced undergraduates serve as facilitators

– Help monitor group progress and dynamics
– Serve as role models for novice learners
– Capstone experience for student facilitators

A good choice for
• Classes of all sizes
Dealing with Large Classes

Floating facilitator or peer facilitator models are the most appropriate.

Requires a more teacher-centered, structured format: instructor directs group activities

Group size: 4

Reduce grading burden through group (vs. individual) papers, projects
“Hybrid” PBL

- Non-exclusive use of problem-driven learning in a class
- May include separate lecture segments or other active-learning components
- Floating or peer facilitator models common

*Often used as entry point into PBL in course transformation process*