

Problem-Based Learning: PBL: Real World Problems As Blueprints for Learning



Deborah E. Allen,
Associate Professor of Biological Sciences

George H. Watson,
Sr. Associate Dean of Arts and Sciences

Hal White,
Professor of Chemistry and Biochemistry
University of Delaware



Blueprints for Learning
Lilly East Conference on College and University Teaching
April 12-14, 2007 Newark, DE



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.”

Boud, D. (1985) PBL in perspective. In “PBL in Education for the Professions,” D. J. Boud (ed); p. 13.



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 on the poster paper provided.

Be prepared to “report out” in 10 minutes



Characteristics Needed in College Graduates

High level of communication skills
Ability to define problems, gather and evaluate information, develop solutions
Team skills -- ability to work with others
Ability to use all of the above to address problems in a complex real-world setting

Quality Assurance in Undergraduate Education (1994)
Wingspread Conference, ECS, Boulder, CO.



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.



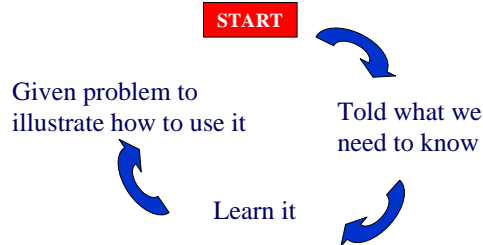
Deflating Grady – Part II

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

Be prepared to “report out” in 10 minutes



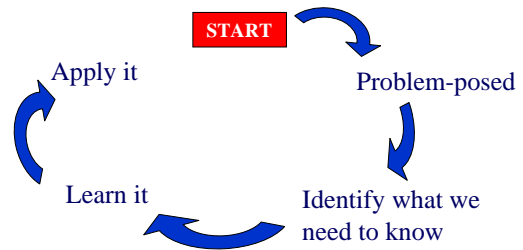
PBL Contrasted with Subject-Based Learning



From Smith et al, 2005. *Pedagogies of engagement: Classroom-based practices. J. Engineering Education, January 2005. 87-101.*



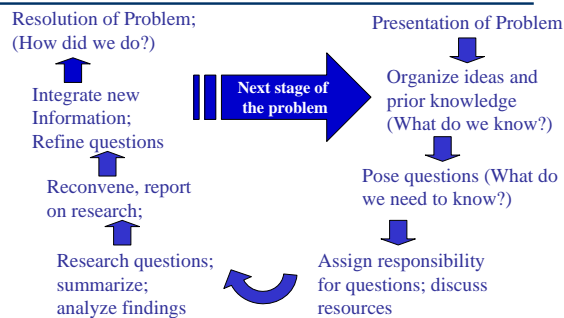
PBL Contrasted with Subject-Based Learning



From Smith et al, 2005. *Pedagogies of engagement: Classroom-based practices. J. Engineering Education, January 2005. 87-101.*



PBL: The Process



Types of Learning Objectives

Content-oriented: subject specific

- Basic knowledge and understanding of specific concepts, techniques, etc. in the discipline

Process-oriented: global skills

- Effective communication: oral and written
- Acquiring and evaluating information
- Working effectively with others
- Higher order, critical thinking



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



UD PBL Online

PBL at UD - www.udel.edu/pbl

Sample PBL materials, including syllabuses; links to other sites

PBL Clearinghouse - www.udel.edu/pblc

Database of peer-reviewed PBL problems

ITUE - www.udel.edu/inst

Workshops on PBL and integration of technology, communication skills