

What Is PBL? Why PBL?



Institute for Transforming Undergraduate Education
University of Delaware

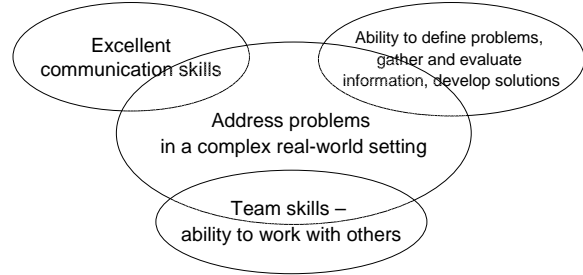


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Getting Students to Think:
Using Problem-Based Learning in the Classroom

www.udel.edu/pbl/southwesterncc

Characteristics Needed in College Graduates



Formatted by Beth Moring

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



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.



What Is PBL?

“...careful inspection of methods which are permanently successful in formal education...will reveal that they depend for their efficiency upon the fact that they go back to the type of situation which causes reflection out of school in ordinary life. They give pupils something to do, not something to learn; and if the doing is of such a nature as to demand thinking, or the intentional noting of connections; learning naturally results.”

John Dewey (1916)

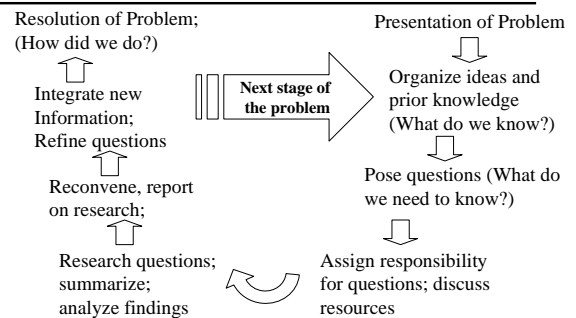


What are the Common Features of PBL?

- 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.



PBL: The Process





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

A good choice for

- Less experienced learners
- Classes of all sizes



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



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.



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/southwesterncc

Using Groups

Courtesy of Hal White and Deb Allen



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The Top 5 Ways to Wreck a Group

List 5 behaviors or actions that can undermine good group function.

Report out in 5 minutes.



Video Clip

<http://www.udel.edu/pbl/groups-in-action/mpegs/dawn.mpg>

Questions to Consider:

- What if anything is wrong with this group?
- What could be done to help this group work better?
- Could this situation have been prevented?



Videotape Credits

Author:
"Dawn's Eight O'Clock" – Harold White

Director:
Nancy King

Producers:
Deborah Allen and Harold White

Student Actors:
Melissa Reddish, Michelle Lyons, Eric Moskal,
Crystal Mack, Amanda Simons

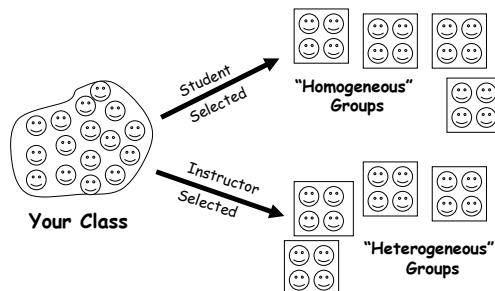


Suggestions for Using Groups

- Set the stage early.
- Form heterogeneous groups.
- Use permanent groups.
- Rotate roles of responsibility.
- Rely on group-selected ground rules.
- Conduct peer evaluations.



Forming Groups Homogeneous vs. Heterogeneous



Courtesy of Hal White



What Aspects of Heterogeneity are Important for You?

Skills? Age? Major?
 Gender? Schedule?
 Learning Style? Ethnicity?
 Academic Record?



Factors to Consider When Forming Groups

- Are the personalities of students in the group compatible?
- Are some members likely to be dominated by others? (by virtue of gender, cultural differences)
- Does the physical arrangement of the room affect how you need to select groups?



Sample Ground Rules

- Come to class on time every day
- Come to class having done the assignment and prepared to discuss it
- Must notify members of the group ahead of time if must miss class for any reason
- Be willing to share information
- Respect the views, values, and ideas of other members of the group

If members of the group violate these ground rules, other members of the group may impose the following consequences:



Factors to Consider When Forming Groups

- Is the size of the group appropriate for the task?
- For this task, is it better to select the students for the groups or allow students to select their group?
- For this task, is it better to form heterogeneous or homogeneous groups?
- Will you need to keep the group together or break it up throughout the semester or problem?
- Are students with different ability levels placed in the same group?



Roles of Responsibility

- Discussion Leader**
Keeps group on track; maintains full participation
- Recorder**
Records assignments, strategies, unresolved issues, data; convenes group outside of class
- Reporter**
Reports out during whole class discussion; writes up final draft of assignments
- Accuracy Coach**
Checks group understanding; finds resources



Peer Evaluation

Some general suggestions:

- Use predetermined written criteria that focus primarily on behaviors.
- Do at least 2 times per semester.
- Factor results into students' grades?
- Summarize results and distribute summaries.
- Keep the process simple.
- Incorporate into group assignments.



Recommendations for Evaluating Student Performance

Focus questions on observable behaviors, not generalized assessments

- Good: The team member had a positive attitude toward this project.
- Questionable: The team member was a good performer

Student perceptions of other's behaviors are relevant; their assessment of another performance may be less valid.



Using Groups in Larger Classes, with Inexperienced Students

Use well-defined activities with clearly stated objectives.

Bring the class together for discussion and/or clarification at frequent intervals.

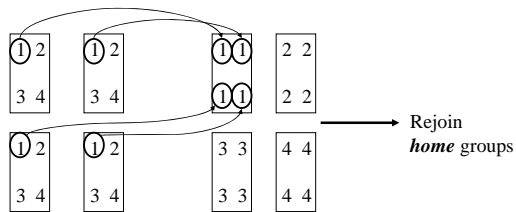
Plan both group and individual assignments.

Watch for signs of behaviors that undermine group function.

Use peer group facilitators.



Jigsaw Group Scheme



4 *home* groups,
with 4 members each

4 new *expert* groups, with one
representative from each *home* group

(Aronson et al. 1978. *The Jigsaw Classroom*. Beverly Hills, CA: Sage.)

Assessment of Individual Performance in Groups

Name of Person You Are Assessing:

Your Name:

Group Name:

For each of the assessment categories below, place an "X" in the box that best indicates the extent to which you think that statement describes the person you are assessing. Fill one out for each member of your group *and* one for yourself. Forms are due at the start of class on the date given in the syllabus.

		strongly disagree	disagree	somewhat agree	agree	strongly agree
1.	Does not miss out on group activities by being absent.					
2.	Does not miss out on group activities by being late.					
3.	Finishes all jobs assigned by the group on time.					
4.	Comes to class having read the material necessary for advancing group discussion.					
5.	Listens well to others' presentations.					
6.	Contributes to the group's discussion.					
7.	Does not dominate the discussion.					
8.	Brings new and relevant information to the group's discussion.					
9.	Uses appropriate resources for researching presentations.					
10.	Presents logical ideas and arguments.					
11.	Asks questions that promote clearer and deeper understanding.					
12.	Communicates ideas and information clearly.					
13.	Helps to identify and implement ways that the group can function better.					

Please circle an overall rating:

- | | |
|--|--|
| <p>1. Excellent - Exceeds expectations</p> <p>2. Good - Meets expectations</p> | <p>3. OK - Improvement in some key areas needed</p> <p>4. Major improvement needed</p> |
|--|--|

Please use the back of the form to respond to the following two statements. Link your responses to the ratings above as appropriate.

1. Describe the ways in which this individual most helps your group's learning.
2. Describe the ways in which a change in this person's behavior could improve your group's learning.