

Because Wisdom Cannot be Told: Introduction to Problem-based Learning

Because Wisdom Cannot be Told

Introduction to Problem-
based Learning
Professor Philip Hallinger
Mahidol University

My Assumptions

Aims of Education

"Pedants sneer at an education which is useful. But if education is not useful, what is it?"

A. N. Whitehead, 1950



© Professor Philip Hallinger 2006

3

Because Wisdom Cannot be Told: Introduction to Problem-based Learning

Goals of Professional Education

"Education in the professions should prepare students for action."

Charles Gragg, 1940
Harvard Business School

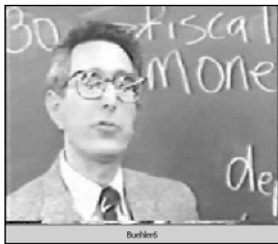


© Professor Philip Hallinger 2006

4

Teaching does not equal learning

- Teachers should not just "cover" subjects
- Our goal should be *active learning*
- PBL is one approach to active learning



© Professor Philip Hallinger 2006

5

Passive Learning is Excellent at Producing Inert Knowledge

Inert knowledge is retained in the learner's long-term memory but is not accessed even in cases where it could assist in solving a problem.



© Professor Philip Hallinger 2006

6

Because Wisdom Cannot be Told: Introduction to Problem-based Learning

There is nothing wrong with well-designed lectures

- Teacher-directed instruction *CAN* be learner-centered
- **BUT** it requires use of specific techniques to ensure student engagement, understanding and retention

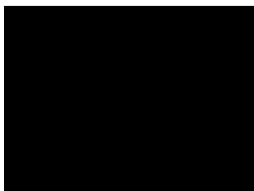


© Professor Philip Hallinger 2006

7

PBL changes. . .

- Focus of effort
- Role of student
- Role of teacher
- Learning environment
- Pattern of communication
- Methods of assessment



© Professor Philip Hallinger 2006

8

'Because Wisdom Cannot Be Told'

Problem-based Learning Project

Because Wisdom Cannot be Told: Introduction to Problem-based Learning

The best way to learn about PBL is to use it!

- This exercise will simulate a typical PBL 'project'
- You will learn in a team
- You will be given a:
 - Problem to solve
 - Learning Objectives
 - Learning resources
 - Product specifications
 - Period of time to work
 - Assessment*



© Professor Philip Hallinger 2006

10

Because Wisdom Cannot be Told:
Learning Objectives

1. What is PBL
2. Learning outcomes of PBL
3. The role of teacher and student in PBL
4. PBL curriculum alternatives
5. Issues in developing materials



Sugawara no Michizane

© Professor Philip Hallinger 2006

11

The Problem

- | | |
|--|---|
| <ul style="list-style-type: none">• You are university faculty in a department• Enrollments are declining• Program content & outcomes have been criticized by students, graduates and local employers for not meeting expected standards of practice | <ul style="list-style-type: none">• Your department is under pressure to reexamine its program• Budget cutbacks are coming if improvements are not made• Your dept. must make a report to the Dean about what you will do to address this problem |
|--|---|

© Professor Philip Hallinger 2006

12

Because Wisdom Cannot be Told: Introduction to Problem-based Learning

Your Role and Task

- Your committee is assigned to examine PBL as a possible approach to improving the curriculum
- Other committees are examining possible uses of case method and learning technologies
- At the end of the meeting you will make one of the following recommendations:
 - Don't consider the use of PBL (if not, why...?)
 - Use PBL in the dept. (if so, in what way?)
 - Study further (if so, what do you need to know? Be specific)

© Professor Philip Hallinger 2006

13

Process Instructions

- You will work in teams
- Review your instructions and discuss "your problem"
- Select a group leader & recorder as instructed
- You have 5 readings; use a *jigsaw* approach
- Review these. Then report to your group on what you learned from the material as it relates to the problem
- I will show some video clips of PBL use at ____ o'clock
- Discuss the problem again in light of the information
- Decide on your recommendation to the dept.
- Be prepared to deliver your recommendation at ____

© Professor Philip Hallinger 2006

14

Learning Resources

- Your own knowledge & experience
- 5 Handouts from book on PBL in higher education
- Videotape: *Can we make a better doctor?*
- Consultants



© Professor Philip Hallinger 2006

15

Because Wisdom Cannot be Told: Introduction to Problem-based Learning

Product Specifications

- Be prepared to report your recommendation as noted earlier
 - Don't consider PBL (if not, what are your reasons?)
 - Use PBL in our Dept. (if so, specify to what extent and in what way(s)?)
 - Study further (if so, what additional information do you need to know before making a decision? Be specific.)

© Professor Philip Hallinger 2006

16

Assessment*

- Handout
- Presentation
- Talk Back Sheet
- Complete PBL/Case Matrix
- Reflective Essay (class)
- Objective exam (class)



© Professor Philip Hallinger 2006

17

Video Resources

Can We Make a Better Doctor

Because Wisdom Cannot be Told: Introduction to Problem-based Learning

PBL Debriefing

Note: Varieties of PBL

Student-centered

- Used in medical schools
- Provides students with problem to be solved
- May or may not provide learning resources
- Groups are 'facilitated' by a tutor
- Greater emphasis on student definition of objectives and information-seeking

Problem-stimulated

- Used in management ed.
- Provides more structure
- Provides objectives & resources
- Conducted as a project
- Focuses on solution implementation as well as analysis
- May/may not use a tutor
- Less self-directed

© Professor Philip Hallinger 2006

20

Debriefing

- How did it feel to work on this project?
- What skills did you notice you/your team lacking to learn effectively from PBL?
- What capabilities did the project require that are not often addressed in classes?
- Having experienced PBL, what do you view as its strengths and limitations?
- What questions remain in your minds about the use of PBL?

© Professor Philip Hallinger 2006

21

Because Wisdom Cannot be Told: Introduction to Problem-based Learning

Summary & Discussion

Summary of PBL

1. The problem is encountered first in the learning sequence before preparation or study has occurred
2. The problem situation is presented as in reality
3. The student works with the problem reasoning, and applying knowledge at his/her level of learning
4. Needed areas of learning are identified into the process of work with the problem and used as a guide to individual study
5. New skills and knowledge are applied to the problem

© Professor Philip Hallinger 2006

23

Research on Outcomes of PBL

1. Results on most cognitive outcomes are comparable or better to those from traditional curriculum depending on the type of knowledge tested
2. Students enjoy the PBL curriculum more; they demonstrate higher motivation and more productive attitudes towards their learning.
3. Students complete their programs at a higher percentage and in less time.
4. PBL curricula cover less content but in more depth.

© Professor Philip Hallinger 2006

24

Because Wisdom Cannot be Told: Introduction to Problem-based Learning

References on Effectiveness of PBL

- Albanese, M., & Mitchell, S. (1993). Problem-based learning: A review of literature on its outcomes and implementation issues. *Academic Medicine*, 68(1), 52-80.
- Albanese, M. (2000). Problem-based learning: Why curricula are likely to show little effect on knowledge and clinical skills. *Academic Medicine*, 34, 729-734.
- Colliver, J. (2000a). The effectiveness of problem-based learning curricula: Research and Theory. *Academic Medicine*, 75, 259-266.
- Colliver, J. (2000b). Effectiveness of PBL curricula: Research and Theory. *Medical Education*, 34, 959-960.
- Dochy, F. et al. (2003) Effects of PBL: A meta-analysis. *Learning and Instruction*, 13, 533-568.
- Gijbels, D. et al. (2005). Effects of PBL: A meta-analysis from the angle of assessment. *Review of Educational Research*, 75(1), 27-62.
- Newman, M. (2001). How effective is problem-based learning? *Education for Health*, 14(2), 333-334.
- Norman, G. (2002). Research in medical education: three decades of progress. *British Medical Journal*, 324, 1559-1562.
- Norman, G., & Schmidt, H. (2000). Effectiveness of problem-based learning curricula: Theory, practice, and paper darts. *Medical Education*, 34, 721-28.
- Vernon, D., & Blake, R. (1993). Does problem-based learning work? A meta-analysis of evaluative research. *Academic Medicine*, 68(7), 592-604.

How Does PBL Differ From Case Teaching?

1. PBL starts with the problem rather than with theoretical content
2. Initial learning of concepts takes place in relation to solving the problem
3. PBL emphasizes both analysis and action or implementation of solutions
4. PBL always takes place in learning groups
5. PBL addresses the *emotions* of the workplace as well as cognitive skills

© Professor Philip Hallinger 2006

26

PBL Goes Beyond Cases in Solution and Product Design and Expression

Products

- Memo
- Interview Role Play
- Simulation
- Website
- Presentation
- Plan or Strategy

Benefits of Solution Orientation

- Consider use of knowledge (tool)
- Forces students to consider practice not only analysis
- Fosters transfer

© Professor Philip Hallinger 2006

27

Because Wisdom Cannot be Told: Introduction to Problem-based Learning

Use of Local Problems Overcomes the "Walmart Syndrome"

- Gives richer clues about the real context
- Provides a setting learners can understand more easily
- Motivates students
- Reduces gap between context of school and the workplace



© Professor Philip Hallinger 2006

28

Localization of Knowledge Use

- Knowledge is used as a tool that is adapted to the setting in which it is used
- Knowledge acquisition must contextualize "global knowledge"
- "Local problems" provide richer context for learning how to apply knowledge



© Professor Philip Hallinger 2006

29

Localize Problem of Organizational Change

- Simulated implementation of an IT change at a co.
- We gathered knowledge of change from Western sources and conducted our own research
- We adapted knowledge base to suit the Thai context

- Changes included
- Context
 - People personalities
 - Staff responses to change
 - Authority rules
 - Social relations
 - Strategy actions to foster change

© Professor Philip Hallinger 2006

30

Because Wisdom Cannot be Told: Introduction to Problem-based Learning

"Seeing and Hearing is
Believing, but eating is
knowing."

Professor Philip Hallinger
Philip.h@cmmu.net
