

The Incorporation of Problem-based Learning within Social Sciences: Lessons from STEM-related Disciplines

Breyette Lorntz, PhD
Educational Research Analyst, Hanover Research

East Coast Colleges Social Science Association
39th Annual Conference Roundtable
March 2013



Goals

For the presentation:

1. To introduce participants to PBL.
2. To describe the integration of PBL into the social sciences.

For participants:

1. To describe the foundations and six key characteristics of PBL.
2. To describe concrete examples of the application of PBL to social sciences.



Overview

- ❑ Definitions of Problem-based Learning
- ❑ Six key characteristics
- ❑ Examples from three social science disciplines.



Brief History of PBL

- Originated in 1960s in the medical school at McMaster University in Canada.
- Spread to other medical schools
- Common in K-20 education in STEM-related disciplines.



Definitions

#1: PBL is both a **curriculum and a process**. The curriculum consists of carefully **selected and designed problems** that demand from the learner acquisition of critical knowledge, problem solving proficiency, self-directed learning strategies, and team participation skills. The process replicates the commonly used systemic approach to resolving problems or meeting challenges that are **encountered in life and career** (Barrows & Kelson, 1995).

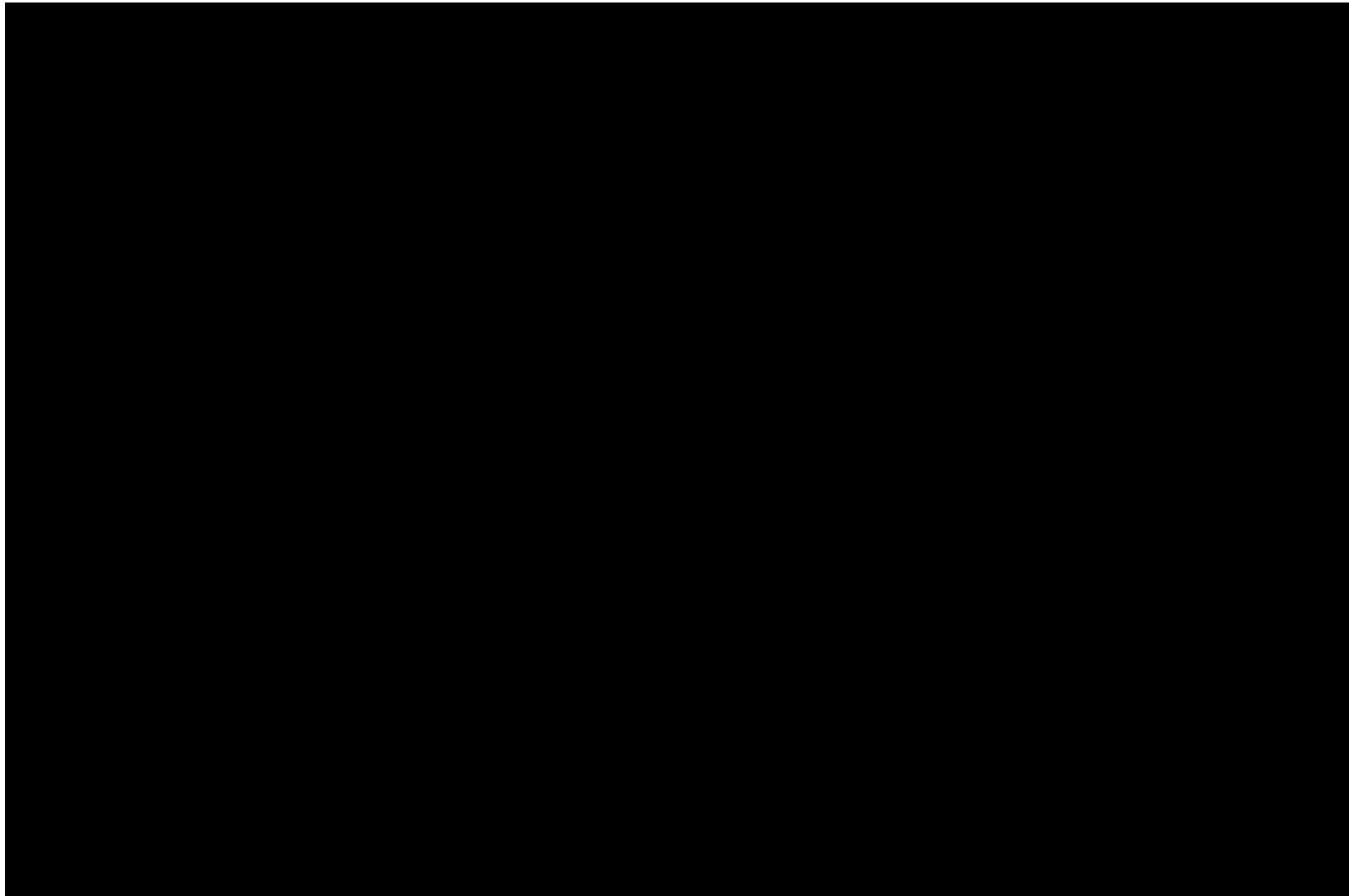
#2: PBL learning activities permit students “to develop successful problem solving in **two dimensions: the acquisition of knowledge and the application of knowledge.**” This two-dimensional learning can lead students to become experts in a given field of study. (Gijbels, 2005)

Barrows, H., and Kelson, A. C. (1995). Problem-Based Learning in Secondary Education and the Problem-Based Learning Institute (Monograph 1), Problem-Based Learning Institute, Springfield, IL.

Gijbels, D. et al. (Spring 2005). Effects of Problem-Based Learning: A Meta-Analysis From the Angle of Assessment. Review of Educational Research, 75(1), 27-61.

Problem-based Learning

ECCSSA – March 2013





Six Key Characteristics

1. Student-centered learning.
2. Small-group learning.
3. Teachers serve as facilitators or guides (tutors).
4. Problems create the focus and stimulus for learning.
5. Problems encourage the development and use of problem solving skills.
6. New knowledge is gained through self-directed learning (SDL).



Benefits of PBL

- ❑ Increasing intrinsic student motivation in learning.
- ❑ Higher order thinking skills.
 - Critical thinking
 - Creative thinking
 - Problem solving
 - Decision making
- ❑ Increases relevance of learning to real world.

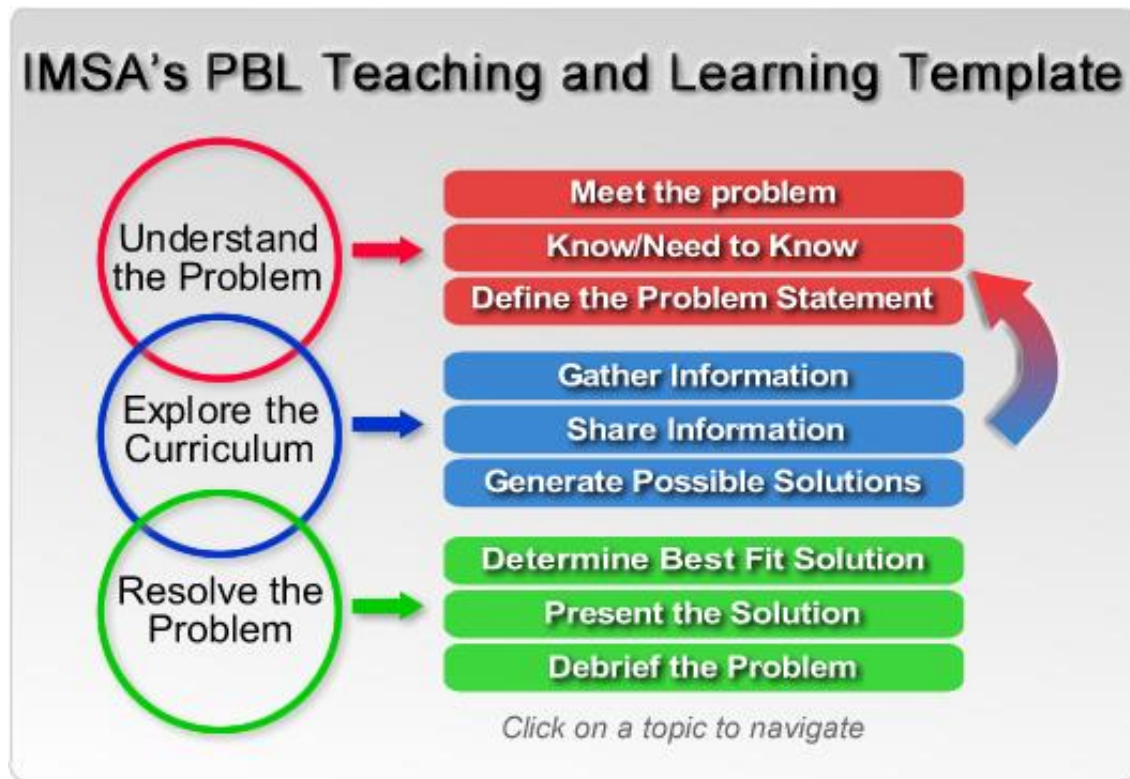


Criticisms of PBL

- Inappropriate cognitive load for students.
- Guidance-fading effect.
- Students don't know what's important for them to learn an area in which they have little experience
- Difficult to cover a much material
- Required teacher planning



The PBL Problem Model





Comparing PBL and Traditional Methods



Curriculum as Prescription

- From the perspective of teacher/expert
- Linear and rational
- Part to whole organization
- Teaching as transmitting
- Learning as receiving
- Structured environment

Curriculum as Experience

- From the perspective of student/learner
- Coherent and relevant
- Whole to part organization
- Teaching as facilitating
- Learning as constructing
- Flexible environment



Examples from three disciplines



American Studies



American literature: The students are members of the Alabama Historical Society which a family has contracted to research their background during the time period of the novel *To Kill a Mockingbird*. What happened? How reliable is the information? Who needs to know—or not? (X PBL, retrieved 25 Feb 13)

American literature: A member of a local citizens' group challenges the inclusion of Mark Twain's novel *The Adventures of Huckleberry Finn* in the curriculum. What are the issues? Should students study this novel? Why or why not? (Ibid.)

American studies: Students are southwest field agents for the Centers for Disease Control (CDC), which has to prepare a press release concerning plague patterns, conditions and precautions based on data from the past ten years. What are the facts, who is the public, and how does the CDC communicate effectively with them? (Ibid.)

Education



The director of elementary learning asks a representative group of teachers to select a new social science textbook series. The new series should address several issues, including meeting divergent student needs, reflecting state standards and fitting within the district's budgetary guidelines. (Ibid.)

Education majors in college are members of an interdisciplinary teaching team responsible for explaining the school's change from the junior high concept to a middle school concept. How do they alleviate parents' concerns about this change? (Ibid.)

The staff of a middle school has received a federal grant to integrate technology into the curriculum via real-world, community issues. What are the opportunities and the obstacles? (Ibid.)

Communication Studies



Media Studies: Your team is a media consulting group that helps businesses and governmental agencies design public outreach efforts. You have been contacted by the State of North Carolina Chamber of Commerce to help with the design of a new tourism website for the State. They have few ideas, but have expressed the desire for “an entertaining and informative site that will dramatically increase visitors to North Carolina.” Your task is to develop a compelling presentation—a “pitch”—that outlines the features of this new website. (Fayetteville State University, retrieved 25 Feb 13)

Civil Rights: What civil right is most important to you? Using the Documented Rights exhibit, created online by the National Archives, identify a current issue related to the civil right you’ve chosen. What actions are people taking regarding this issue? What can you do to protect this right? Create a video about this right. See the CSPAN Student Cam project winners for inspirational examples. (Lorntz)

http://www.uncfsu.edu/facultydevelopment/Media/Saturday_Academy/2009/Documents/03-07-09/pblfsu.pdf



Brainstorming





Resources

The Interdisciplinary Journal of Problem-based Learning

<http://www.edci.purdue.edu/ijpbl/>

The Experimental Learning Center | Destination PBL

<http://learnpbl.com/>

Study Guides and Strategies

<http://www.studygs.net/pbl.htm>

Project Based Learning: The Online Resource for PBL

<http://www.udel.edu/inst/why-pbl.html>



Acknowledgements

Professional Mentors

Ron Hopper, Watauga County Schools

Dr. Ken McEwin, Appalachian State University

Colleagues at Hanover Research

Devon Weidemann

Amir Rasool

Sid Phillips



Thank you.
Questions?

Please feel free to contact me with any with follow-up questions:

Breyette Lorntz, PhD
Educational Research Analyst
Hanover Research

Tel: (202) 559-0045

Email: blorntz@hanoverresearch.com

Twitter: [@hanoverhighered](https://twitter.com/hanoverhighered)