Overview

Problem-Based Learning (PBL) is a learning theory branching from the Constructivism school of thought. In PBL, students are separated into groups, presented with an ill-structured problem, and given the opportunity to explore, negotiate, and define a solution for the problem. (Hmelo-Silver & Barrows, 2008) Students are required to build knowledge, filling gaps in current knowledge to successfully resolve the problem at hand. This instructional approach was first used heavily in schools of medicine, but has steadily made its way into education at-large since its inception in the 1970’s.

Contributors

PBL is largely seen as having been founded at McMaster University in Canada. Major contributors to PBL as a modern theory of education include Howard S. Barrows, generally recognized as its main proponent in larger educational settings. Further research and elaboration has come from a variety of sources, with Cindy Hmelo-Silver, John R. Savery, and Thomas M. Duffy being the leading lights. John Stinson and Linda Allison have been credited with taking the ideas of PBL out of medical schools into other instructional areas.

Major Principles

The major principles of PBL focus on the development of a student-centered learning environment with the teacher as a facilitator, built around the major tenets of constructivism. PBL expands upon the idea that instruction should be built around a larger task or problem placed in an authentic setting where students are given responsibility and ownership of resolving the task. The problem should be challenging, set in a structure that allows for investigation, and isn’t fully resolved without reflection and discussion of the issues at hand. (Savery & Duffy, 1995)

For the best introduction to the major principles of PBL, however, we should look to Howard Barrows. Barrows suggests six dimensions of learning within PBL, paraphrased below. (Burrows & Kelson, 1993)

1. Problem solving with ill-formed problem offering many possible solutions
2. Goal of functional knowledge with cognitive flexibility
3. Self-directed learning
4. Collaboration
5. Taking ownership with active, engaged learning
6. Building a habit of reflection and self appraisal in all learning experiences

Application

Stephen Yeung (2010) offers a very real classroom example of PBL in action. His study presented students with a set of challenging geography statements to study. These problems focused on general statements without much background or direction, such as Global Warming—Fact or Fiction? and Tsunami Effects—Who Is Responsible? Students were separated into groups, allowed their choice of statement, and then asked to review the problem, research and gather information, develop a problem statement for oral presentation for their possible solution/response to the larger statement. They divided tasks, built a timeline, and discussed what they knew and what they needed to know. Groups presented their solutions, and reflected on their own and others’ resolutions to verify performance.
References


