

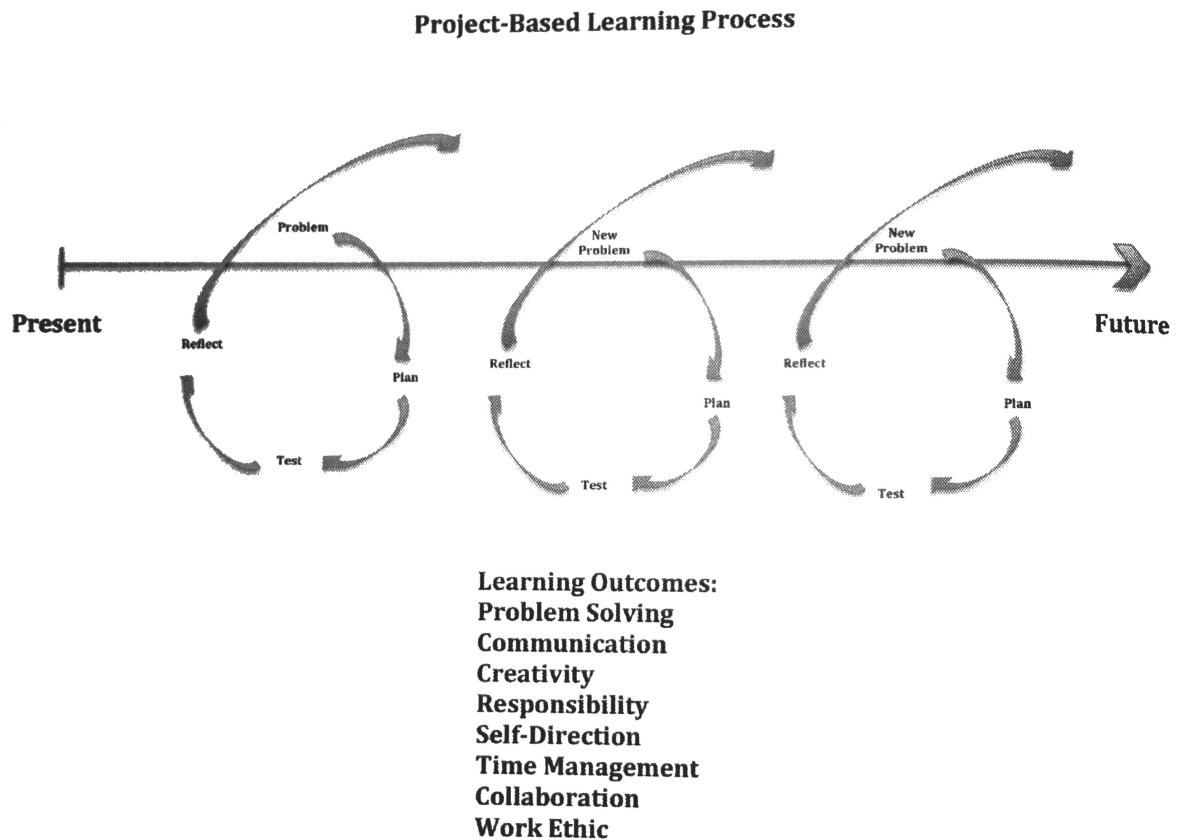
Project-based Learning

“To do mathematics is to engage in an act of discovery and conjecture, intuition and inspiration; to be in a state of confusion – not because it makes no sense to you, but because you gave it sense and you still don’t understand what your creation is up to; to have a breakthrough idea; to be frustrated as an artist; to be awed and overwhelmed by an almost painful beauty; to be alive, damn it.”

– Paul Lockhart

When students are in the process of completing a project, they go through the process of identifying problems, developing plans, testing them against reality, and reflecting on them to determine their worth. This process challenges students cognitively as they attempt to construct the project and solve problems they encounter in the process of completing it.

The Power of Project-Based Learning, p. 25-26



The educator's role in project-based learning

- The educator will act as a guide, allowing students to make mistakes and learn from them along the way
- The educator will provide students freedom to experiment in order to discover solutions to the problems they encounter
- The educator will provide students with resources and information when they get stuck so that they can continue moving forward with their learning

The Power of Project-Based Learning, p. 32

Newell's (2007) five variations of project-based learning

The Power of Project-Based Learning, p. 28-29

Project is teacher-controlled
Project is part of curricular unit, text, etc.
All students do the same thing
No student choice
Graded as part of class unit

1

2

Project is teacher-controlled
Allows for student-inquiry, choice of topic within curriculum
Students have to frame their own questions
All students have the same time frame
Graded as part of a class unit

Project is set up and orchestrated by the teacher
Project is inquiry-based, looks at “big picture”, still curriculum-based
Project is interdisciplinary and thematic in nature
Students may be in cooperative groups, teaming
Performance, product assessment is used as well as class grade

3

4

Project is created with teacher-student interaction
Project is interdisciplinary in nature, inquiry-based, authentic
Rubrics assess performances, critical thinking, and problem solving
Students may be in cooperative groups, teaming, or whole class
Includes place-based, community service, etc.
Time frame is negotiable but within semester or units

Project is student-driven, authentic
Project is teacher-facilitated, with teachers providing the process
The “whole world” is the curriculum, with state standards guiding the work
Rubrics assess learning-to-learn skills, individual development, etc.
Performance and products assessed, performances to real-world audience
May be individual or group projects
Could include place-based community service projects
Nongraded, time frame is negotiable

5

Materials cited in this session:

Newell, R. (2007). *Project-Based Learning*. Unpublished manuscript.

Whiteley, G. (2015). *Most Likely to Succeed*.

Wurdinger, S. D. (2016). *The Power of Project-Based Learning: Helping Students Develop Important Life Skills* (Reprint edition). Lanham: Rowman & Littlefield Publishers.