

Planning for your PBL Unit

Definition: PBL is an individual or group activity that goes on over a period of time, resulting in a product, presentation, or performance. It typically has a timeline, milestones, and other aspects of formative evaluation as the project proceeds.

Project-based learning is learner centered and directed. Students have a significant voice in selecting the content areas and nature of the projects that they do. There is considerable focus on students understanding what it is they are doing, why it is important, and how they will be assessed. Indeed, students may help to set some of the goals over which they will be assessed and how they will be assessed over these goals. All of these learner-centered characteristics of PBL contribute to learner motivation and active engagement. A high level of intrinsic motivation and active engagement are essential to the success of PBL methodology (Moursund, 2005).

From the student point of view. PBL:

1. Is learner centered and intrinsically motivating.
2. Encourages collaboration and cooperative learning.
3. Requires students to produce a product, presentation, or performance.
4. Allows students to make incremental and continual improvement in their product, presentation, or performance.
5. Is designed so that students are actively engaged in "doing" things rather than in "learning about" something.
6. Is challenging, focusing on higher-order knowledge and skills.

From the teacher point of view, PBL:

1. Has authentic content and purpose.
2. Uses authentic assessment.
3. Is teacher facilitated—but the teacher is much more a "guide on the side" rather than a "sage on the stage."
4. Has explicit educational goals.
5. Is rooted in [constructivism](#) (a social learning theory) and gives careful consideration to [situated learning theory](#).
6. Is designed so that the teacher will be a learner, learning from and with the students.

Research Base

The research literature specifically on project-based learning is somewhat limited in breadth and depth. Thus, it is important to study the research on closely related approaches to education. Research in each of the following areas contributes to the assertion that PBL is effective.

1. Constructivism and Situated Learning.
2. Motivation Theory (intrinsic motivation).
3. Inquiry & Discovery-Based Learning.

4. Cooperative Learning.
5. Peer instruction.
6. Individual & Collaborative Problem Solving.
7. Problem-Based Learning.
8. Rubrics—clearly defined (not hidden) expectations.
9. Multiple forms of assessment. Authentic assessment. Clearly defined rubrics facilitating self-assessment, peer assessment, assessment by the teacher, and assessment by outside experts.
10. Direct research studies on PBL.

[New Tech High](#) teachers build their instruction around eight Learning Outcomes -- content standards, collaboration, critical thinking, oral communication, written communication, career preparation, citizenship and ethics, and technology literacy -- which they embed in all projects, assessments, and grade reports. Instructors start each unit by throwing students into a real-world or realistic project that engages interest and generates a list of things they need to know. Projects are designed to tackle complex problems requiring critical thinking.

The school's strategy is simple:

To learn collaboration, work in teams.

To learn critical thinking, take on complex problems.

To learn oral communication, present.

To learn written communication, write.

To learn technology, use technology.

To develop citizenship, take on civic and global issues.

To learn about careers, do internships.

To learn content, research and do all of the above.

Examples of projects include presenting a plan to Congress on solving the oil crisis, addressing economic issues as a team of the president's economic advisers, or inventing, under contract from NASA, new sports that astronauts can play on the Moon for exercise.

A Seven-Step Planning Process

The first phase of developing an ICT-Assisted PBL lesson plan focuses on defining the topic of the lesson and developing the curriculum, instruction, and assessment.

The following is adapted from Moursund, D.G. (2003) *Project-Based Learning in an Information Technology Environment*. Eugene, OR: ISTE and original work from my PBL classrooms and work around 21st Century reform.

1. Project content. Develop a working title and a mission statement for the project. Develop a brief summary of the content area. Some examples of mission statements include: 1) to preserve our town's wetlands; 2) to make our lake safe for swimming; 3) to capture and preserve the history of our community; 4) to improve the quality of life of people in our community; and 5) to understand underlying causes of civil wars. The summary includes answers to the two important questions:
 1. How does project content fit into the "big picture" of the overall subject being studied or course of instruction? For example, if the project is being done in a history class, how does it fit in

with the goals of the history unit or course? How does it fit in with students increasing their expertise as historians? Notice that the same questions are used for other disciplines (such as math, language arts, etc.) but the answers will be different. One of your roles as a teacher is to help your students understand the big picture.

2. Is the overall mission clear, and are the projects that the students are going to do clear contributors to the overall mission? Innumerable individual, team, and whole class projects might be designed to contribute to accomplishing a mission. (If you have trouble doing this analysis, the chances are that the project has weak authenticity.)
2. Project goals. Briefly analyze the project in terms of how it relates to:
 1. General goals of education.
 2. Specific goals within the content area the project is being done in. For example, if the project is being done as part of a science curriculum, then it should have specific science learning goals and objectives. Quite likely these should be tied to school district and state goals and objectives within the subject area.
 3. [General 21st Century Skills](#)- Which specific 21st Century goals are being focused on as students do the work of this project?
 4. Specific goals and objectives within your ICT curriculum.
3. Summarize the prerequisite knowledge and skills that you will assume students have. Do all of your students meet these prerequisites? (How do you know this? And, are all of your students at an appropriate developmental level for the type of work and learning that you have in mind?) How will you deal with situations in which individual students lack key prerequisite knowledge and skills? Perhaps especially in K-12 education, this is a very challenging issue. A third grade teacher may be working with students whose current reading, writing, and math performances vary between the first grade and fifth grade levels. An eighth grade math teacher may be faced by a number of students who are performing two to four years below grade level. How will you differentiate the learning?
4. Teams. Answer questions such as:
 1. Will each student do an individual project, or will there be multi-student teams? If there are teams, how will the teams be created? Will the teams include people from outside of the class such as other students (perhaps even from other countries), parents, or mentors?
 2. (Assuming that there are teams.) What role will you play in specifying team leaders and the roles of each person on a team? For example, will you select teams so that they are balanced in strength and have diversity? Will you do ability grouping or just the opposite--work to have each team have balanced abilities?
 3. To what extent will individuals or teams be able to define their own projects, within the general framework of the topic being addressed in the PBL lesson?
5. Timeline. This should include:
 1. Timeline for the whole project, including minutes or class periods per day and number of days/weeks/months to be devoted to the project.
 2. Checkpoint dates. What are the major milestones in accomplishing the project, and what are the dates by which these milestones are to be reached? What will students or teams be expected to present, show, turn in, etc. as evidence of having reached the milestones?
6. Resources and materials.
 1. What resources will the students and teams need? Are there constraints on the availability of these resources? (For example, perhaps students will need to use a digital video camera, and there is only one digital video camera in the school. What happens if other classes also need to use this camera, or if it is broken sometime during the project?)

2. What information resources do the students need to access? Will you have specific requirements on the number or nature of different information resources the students must use?
3. Will students be allowed to or encouraged to use people as information resources? If yes, how will this be facilitated, monitored, and referenced or attributed?
7. Assessment. How will students be assessed? How will you deal with individual assessment if you are having students work in teams?

1. Begin with the end in mind.

Summarize the theme for the project. Why do this project? Identify the content standards that students will learn in this project. Identify key skills that students will learn in this project. Identify the habits of mind that students will practice in this project.

2. Craft the driving question.

State the essential question or problem statement for the project. The statement should encompass all project content and outcomes, and it should provide a central focus for student inquiry.

3. Plan the assessment, part 1.

Define the products for the project. What will you assess--early in the project, during the project, and at the end of the project?

Plan the assessment, part 2.

State the criteria for exemplary performance of each product.

4. Map the project, part 1.

What do students need to know and be able to do to complete the tasks successfully? How and when will they learn the necessary knowledge and skills? Look at one major product for the project and analyze the tasks necessary to produce a high-quality product. (List the knowledge and skills that students will need: already learned, taught before the project, and taught during the project.)

Map the project, part 2.

List key dates and important milestones for this project. What challenges or problems might arise?

5. Manage the process.

List the preparations necessary to address needs for differentiated instruction for ESL students, special-needs students, or students with diverse learning styles. Ask: How will you and your students reflect on and evaluate the project? (Class discussion, student-facilitated formal debrief, teacher-led formal debrief, individual evaluations, group evaluations, or other.)

[Characteristics of Creative People](#)

[Learning Experiences Chart](#)

[Evaluation Criteria](#)

[Guidelines for Planning Meaningful Learning Experiences](#)

[Guidelines for Selecting PBL Topics](#)

[Guidelines for Developing PBL Units](#)

[Evaluation Checklist for PBL Units](#)

Resources

Global Project Plan Template

<http://www.lullah.com/gpblplan/template.html>

Self-Check List

<http://www.uchsc.edu/CIS/PBLChkList.html>

Project Planning Forms

<http://pbl-online.org/ProjectPlanning/PlanningForm.htm>

http://www.bie.org/files/BIE_PBLplanningform.pdf

Project Planning

<http://www.edutopia.org/big-list-project-learning?keys=project+planning>

21st Century Skills and PBL

<https://21st-century-skills.wikispaces.com/PBL>

Designing, Facilitating, and Assessing PBL

<http://21st-century-skills.wikispaces.com/file/view/pbl-design-msta-1.pdf>