

Teaching Project-based Assignments

Overview

Oftentimes, assigned research papers and other longer projects fail because students do not understand the underlying problems their work addresses or how they can authentically contribute to solving them. Project-based learning (PBL) emphasizes the problem throughout the writing process so that students understand the value of their work both inside the classroom and beyond. The PBL process is structured around forming authentic questions relevant to the problem and seeking answers through a series of scaffolded tasks. It culminates in a revised product that is shared with a real audience.

Foregrounding the problem throughout the series of scaffolded tasks helps students understand the importance of each step of their project work. It also helps the instructor and student work together to scaffold the number of tasks it will take to complete the project. PBL has been shown to increase students' intrinsic motivation to learn, to improve their confidence in self-directed learning activities, and to enhance their problem-solving skills.

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General Considerations

Project-based learning offers an abundance of choice and flexibility for both the instructor and students, and it is appropriate in all disciplines. This section provides a general set of best practices to achieve a successful PBL experience that is both academically rigorous and personalized.

Achieve Personal *and* Educational Purpose: Well-designed and well-implemented project-based learning fulfills two criteria. First, students must understand the ways in which their project is personally meaningful so they can make a commitment to successfully completing the tasks. Second, students must understand how their project fulfills an educational purpose relevant to the course and future needed skill sets.

Establish an Appropriately Difficult Problem: Students perform best when they encounter problems they find challenging and which they know how to engage so they can arrive at an appropriate solution. The two main factors that contribute to a problem's difficulty are the level of a problem's *abstraction* and the extent to which the problem has *continuity*. If a problem is too abstract, students have a difficult time transferring their knowledge of the problem to other content or contexts. If a problem is not continuous enough, students have difficulty seeing how

it persists through time and view the problem more as an isolated incident. The level of abstraction and continuity of a problem should depend on student ability.

Determine Appropriate Solutions by Discipline: What counts as an appropriate solution to a problem is dependent on discipline. Instructors should clearly articulate their expectations for a solution and the ways they expect this solution to be argued. See Supplement 1: “Research Options for Project-based Assignments” at the beginning of this resource for specific options.

Engage Multiple Perspectives: While an appropriate solution to a problem should be dependent on discipline, successful PBL gives students significant opportunities to examine the problem from multiple perspectives. During this process, students should be encouraged to draw on relevant prior knowledge and experience. For instance, a biology major taking a public health course could develop a project around the problem of the most effective way to teach third graders about bacteria and draw on ethnography, their biology lab work, and communications analysis to arrive at an appropriate solution.

Engage multiple activities or skills: PBL supports a wide variety of activities and skill set building most relevant for particular courses and disciplines. PBL projects can be primarily driven by more open-ended narratives or more data-driven tasks. The best kind of PBL experience asks students to engage in multiple kinds of activities and skills. For instance, asking students to combine archival research with fieldwork or analysis helps keep student interest high.

Provide On-going, Multiple Types of Feedback and Assessment: Long-term projects might span the second half of a semester, or even the entire fifteen weeks. Students need multiple opportunities for feedback and assessment to remain focused and engaged in their work. See the Supplement 2: “Assessment and Feedback Options for Project-based Assignments” at the beginning of this resource for specific options.

Strategies in the Classroom

Students Regardless of course or discipline, effective project-based learning includes seven essentials. This section lists each of these essentials and offers accompanying classroom strategies to achieve them.

1. Invest in the Problem: PBL begins with an investment in a problem students genuinely want to solve. In some courses, all the students will be working on the same problem, while in other courses each student might be generating their own. Regardless, use at least one entry event together as a class in order to model investment in the problem.

- Entry event example: In a recent visit to the United States, United Nations experts, “while praising the current United States administration for its commitment to women’s equality” warned that “the extreme polarization of US politics is ‘profoundly’ affecting the Government’s ability to guarantee women’s human rights.”

2. Pose a driving question: Students need a clearly articulated driving question to begin their research. Working together as a class and then in small groups or pairs, students could be asked to test out and revise model questions using the following criteria.

A good driving question is one for which the student

- Is genuinely interested
- Does not know the answer
- Cannot find one definitive answer
- Is specific enough in their inquiry to begin research

3. Create opportunities for student voice and choice: It is useful for students to articulate the vision for their project near the beginning of their work and then again near the end. This helps them take agency and responsibility for their work. Asking students to write a proposal or a pitch letter near the beginning of their projects and then again near the end, gives them opportunities to see how many choices they have to make, and the ways their projects change as they undergo substantial thinking and research. A project pitch assignment could ask students to write a one-page letter to a prospective paying audience for their work addressing the questions below.

- Who is the intended audience of the work?
- What form will the final work take—what genre, and for what specific publication/presentation venue?
- Approximately how long will the final work be?
- How will the project combine textual and other multimodal elements?
- Why should the work be published/presented? What are its motive and stakes? Why should someone want to read your work? Particularly at this moment in time?
- Why should *you* write the work, rather than some other writer?

4. Utilize 21st century skills: In order for students to understand the current relevancy of their topic and their problem, they need to engage or be engaged with 21st century skills. This could take many forms including showing and discussing a YouTube video or twitter feed relevant to the problem, introducing a global perspective on what might have been more nationalized a few decades ago, or having students write blog entries, use Google maps, or create annotated timelines. Utilizing 21st century skills helps students understand the current relevancy of their topic and their problem and helps them envision an audience for their work. Electronic portfolios are also a great way for students to showcase their final product.

5. Support inquiry and innovation: Part of the joy and the challenge of teaching through PBL is that there are multiple outcomes. To facilitate this, students need to be encouraged to pose their own questions and to research in innovative ways. It is helpful for students to revisit the basic problem and questions they're pursuing at multiple stages in their projects and to provide them with opportunities to see what their peers are working on as well.

6. Provide opportunities for feedback and revision: Students should receive feedback or be working on a revision at least once a week for their project. Diversifying the types of feedback the students get through the process keeps them engaged in the process. You can diversify feedback through the kinds of tasks or through who is scheduled to provide feedback. Supplement 2: Assessment and Feedback Options for Project-based Assignments" at the beginning of this handout details these feedback opportunities at greater length.

- Possible project tasks: a production plan that includes a rough calendar and outline of the work they plan to do for the project, blog posts on project progress, journal reflections, team meetings, annotated bibliography sets.
- Possible ways to provide feedback: private conference with the instructor, written feedback from the instructor, presentations followed by Q & A-style feedback from classmates, small group discussions, written peer responses.

7. Arrange a public presentation of students' final product: Giving students a chance to share their work with an audience helps them value their final product more and it also gives them the confidence to try other projects in the future. You might put together their work as a conference-style presentation, have them prepare short 5-minute presentations to the class, or arrange a showcase of their work at a suitable campus or local venue.

Further Reading

Barrett, Terry. *New Approaches to Problem-based Learning: Revitalising Your Practice In Higher Education*. New York: Routledge, 2011.

The Buck Institute for Education. *Project Based Learning: The Online Source for PBL*. n.p., n.d. Web.

Gijbels, David, Filip Dochy, Piet Van den Bossche, & Mien Segers. "Effects of Problem-Based Learning: A Meta-Analysis from the Angle of Assessment." *Review of Educational Research*. Spring 2005 vol. 75 no. 1 27-61.

Helle, Laura. "Project-Based Learning in Post-Secondary Education – Theory, Practice and Rubber Sling Shots." *Higher Education*. March 2006, Volume 51, Issue 2, pp 287-314

Hye-Jung Lee¹, & Cheolil Lim. "Peer Evaluation in Blended Team Project-Based Learning: What Do Students Find Important?" *Journal Of Educational Technology & Society*, 15(4). 2012.

Larmer, John, John Mergendoller & Suzie Boss. *Setting the Standard for Project Based Learning: A Proven Approach to Rigorous Classroom Instruction*. 2015

Larmer, John and John R. Mergendoller. "Seven Essentials for Project-Based Learning." ACSD, Association for Supervision and Curriculum Development. September 2010, Volume 1, pp 34-37. Web.

Lee, J. S. , Blackwell, S. , Drake, J. , & Moran, K. A. "Taking a Leap of Faith: Redefining Teaching and Learning in Higher Education Through Project-Based Learning." *Interdisciplinary Journal of Problem-Based Learning*, 8(2). 2014.

Walker, Andrew. *Essential Readings In Problem-based Learning*. West Lafayette, Indiana: Purdue University Press, 2015.