

Gold Standard PBL: Essential Project Design Elements

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It's nice that Project Based Learning is becoming popular, but popularity can bring problems. Here at the Buck Institute for Education, we're concerned that the recent upsurge of interest in PBL will lead to wide variation in the quality of project design and classroom implementation.

If done well, PBL yields great results. But if PBL is not done well, two problems are likely to arise. First, we will see a lot of assignments and activities that are labeled as “projects” but which are not rigorous PBL, and student learning will suffer. Or, we will see projects backfire on underprepared

To help teachers do PBL well, we created a comprehensive, research-based model for PBL — a “gold standard” to help teachers, schools, and organizations to measure, calibrate, and improve their practice. This term is used in many industries and fields to indicate the highest quality process or product. Our conception of Gold Standard PBL has three parts: 1) Student Learning Goals (in the center of the diagram below) 2) Essential Project Design Elements (shown in the red sections of the diagram), and 3) Project Based Teaching Practices (which we explain elsewhere).



teachers and result in wasted time, frustration, and failure to understand the possibilities of PBL. Then PBL runs the risk of becoming another one of yesterday's educational fads — vaguely remembered and rarely practiced.

Student Learning Goals

Student learning of academic content and skill development are at the center of any well-designed project. Like the lens of a camera, our diagram puts the focus of PBL on preparing students for successful school and life experiences.

Key Knowledge and Understanding

Gold Standard PBL teaches students the important content standards, concepts, and in-depth understandings that are fundamental to school subject areas and academic disciplines. In good projects, students learn how to apply knowledge to the real world, and use it to solve problems, answer complex questions, and create high-quality products.

Key Success Skills

Content knowledge and conceptual understanding, by themselves, are not enough in today's world. In school and college, in the modern workplace, as citizens and in their lives generally, people need to be able to think critically

and solve problems, work well with others, and manage themselves effectively. We call these kinds of competencies “success skills.” They are also known as “21st Century Skills” or “College and Career Readiness Skills.”

It’s important to note that success skills can only be taught through the acquisition of content knowledge and understanding. For example, students don’t learn critical thinking skills in the abstract, isolated from subject matter; they gain them by thinking critically about math, science, history, English, career/tech subjects, and so on.

We recommend all projects include a focus on these success skills: critical thinking/problem solving, collaboration, and self-management. Projects may also help build other skills, habits of mind and work, and personal qualities (such as perseverance or creativity), based on what teachers, schools, parents and communities value, but we believe the fundamental ability to think critically, solve problems, work with others and manage oneself and one’s own work are crucial stepping stones to future success.

Essential Project Design Elements

So what goes into a successful project? Based on an extensive literature review and the distilled experience of the many educators we have worked with over the past fifteen years, we believe the following Essential Project Design Elements outline what is necessary for a successful project that maximizes student learning and engagement.

Challenging Problem or Question

The heart of a project — what it is “about,” if one were to sum it up — is a problem to investigate and solve, or a question to explore and answer. It could be concrete (the school needs to do a better job of recycling waste) or abstract (deciding if and when war is justified). An engaging problem or question makes learning more meaningful for students. They are not just gaining knowledge to remember it; they are learning because they

have a real need to know something, so they can use this knowledge to solve a problem or answer a question that matters to them. The problem or question should challenge students without being intimidating. When teachers design and conduct a project, we suggest they (sometimes with students) write the central problem or question in the form of an open-ended, student-friendly “driving question” that focuses their task, like a thesis focuses an essay (e.g., “How can we improve our school’s recycling system, so we can reduce waste?” or “Should the U.S. have fought the Vietnam War?”).

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Sustained Inquiry

To inquire is to seek information or to investigate — it’s a more active, in-depth process than just “looking something up” in a book or online. The inquiry process takes time, which means a Gold Standard project lasts more than a few days. In PBL, inquiry is iterative; when confronted with a challenging problem or question, students ask questions, find resources to help answer them, then ask deeper questions — and the process repeats until a satisfactory solution or answer is developed. Projects can incorporate different information sources, mixing the traditional idea of “research” — reading a book or searching a website — with more real-world, field-based interviews with experts, service providers and users. Students also might inquire into the needs of the users of a product they’re creating in a project, or the audience for a piece of writing or multimedia.

Authenticity

When people say something is authentic, they generally mean it is real or genuine, not fake. In education, the concept has to do with how “real-world” the learning or the task is. Authenticity increases student motivation and learning. A project can be authentic in several ways, often in combination. It can have an authentic *context*, such as when students solve problems like those faced by people in the world outside of school (e.g., entrepreneurs developing a business plan, engineers designing a bridge, or advisors to the President recommending policy). It can involve the use of real-world *processes, tasks and tools, and quality standards*, such as when students plan an experimental investigation or use digital editing software to produce videos approaching professional quality. It can have a real *impact* on others, such as when students address a need in their school or community (e.g., designing and building a school garden, improving a community park, helping local immigrants) or create something that will be used or experienced by others. Finally, a project can have *personal* authenticity when it speaks to students’ own concerns, interests, cultures, identities, and issues in their lives.

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Student Voice & Choice

Having a say in a project creates a sense of ownership in students; they care more about the project and work harder. If students aren’t able to use their judgment when solving a problem and answering a driving question, the project just feels like doing an exercise or following a set of directions. Students can have input and (some) control over many aspects of a project, from the questions they generate, to the resources they will use to find answers to their questions, to the tasks and roles they will take on as team members, to the products they will create. More advanced students may go even further and select the topic and nature of the project itself; they can write their own driving question and decide how they want to investigate it, demonstrate what they have learned, and make their work public.

Reflection

John Dewey, whose ideas continue to inform our thinking about PBL, wrote, “We do not learn from experience. We learn from reflecting on experience.” Throughout a project, students — and the teacher — should reflect on what they’re learning, how they’re learning, and why they’re learning. Reflection can occur informally, as part of classroom culture and dialogue, but should also be an explicit part of project journals, scheduled formative assessment, discussions at project checkpoints, and public presentations of student work. Reflection on the content knowledge and understanding gained helps students solidify what they have learned and think about how it might apply elsewhere, beyond the project. Reflection on success skill development helps students internalize what the skills mean and set goals for further growth. Reflection on the project itself — how it was designed and implemented — helps students decide how they might approach their next project, and helps teachers improve the quality of their PBL practice.

Critique & Revision

High quality student work is a hallmark of Gold Standard PBL, and such quality is attained through thoughtful critique and revision. Students should be taught how to give and receive constructive peer feedback that will improve project processes and products, guided by rubrics, models, and formal feedback/critique protocols. In addition to peers and teachers, outside adults and experts can also contribute to the critique process, bringing an authentic, real-world point of view. This common-sense acknowledgement of the importance of making student work and student products better is supported by research on the importance of “formative evaluation,” which not only means teachers giving feedback to students, but students evaluating the results of their learning.

Public Product

There are three major reasons for creating a public product in Gold Standard PBL — and note that a “product” can be a tangible thing, or it can be a presentation of a solution to a problem or answer to a driving question. First, like authenticity, a public product adds greatly to PBL’s motivating power and encourages high-quality work. Think of what often happens when students make presentations to their classmates and teacher. The stakes are not high, so they may slack off, not take it seriously, and not care as much about the quality of their work. But when students have to present or display their work to an audience beyond the classroom, the performance bar raises, since no one wants to look bad in public. A certain degree of anxiety can be a healthy motivator. But too much anxiety can of course detract from performance — the trick is to find the sweet spot, not the sweat spot — so it’s important that students are well prepared to make their work public.

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Second, by creating a product, students make what they have learned tangible and thus, when shared publicly, discussible. Instead of only being a private exchange between an individual student and teacher, the social dimension of learning becomes more important. This has an impact on classroom and school culture, helping create a “learning community,” where students and teachers discuss what is being learned, how it is learned, what are acceptable standards of performance, and how student performance can be made better.

Finally, making student work public is an effective way to communicate with parents, community members, and the wider world about what PBL is and what it does for students. When a classroom, school, or district opens itself up to public scrutiny, the message is, “Here’s what our students can *do* — we’re about more than test scores.” Many PBL schools and districts reinforce this message by repurposing the traditional “open house” into an exhibition of project work, which helps build understanding and support for PBL among stakeholders. When the public sees what high-quality products students can create, they’re often surprised, and eager to see more.

Adapted from *Setting the Standard for Project Based Learning: A Proven Approach to Rigorous Classroom Instruction*, by John Larmer, John Mergendoller, Suzie Boss (ASCD 2015).