What Students Think About:

Project Path

- ▶ What is the project asking me to do?
- ▶ What do I need to know?
- Why is this important?
- ▶ Who will I be sharing my work with?

Drawing Question Faundi Project Brigg Byont +

- - **How Teachers Support Inquiry:** Conduct entry event and present/co-construct
- Facilitate process for generating student questions

driving question

Build Knowled

What is my role in the process?

Can I trust the information I am

finding?

What resources can and should I use?

Understanding & Skills to Answer Driving Question

Develop and Critique Revision

> Facilitate use and evaluation of resources

needs Provide lessons, scaffolds, and guidance in response to student

Products and Answers to the Driving Question

Is my work on the right track? ▶ Do I need more information? ▶ What new questions do I have? How can I apply what I have learned to

the project?

- Help students apply learning to project tasks
- Provide additional experiences questions to generate new knowledge and
- Facilitate processes for feedback
- Help students evaluate their
- ▶ Facilitate student reflection on process and learning

and Answers to the Drawing Question Present Products

▶ What have I learned and what should I ▶ How can I best share this with others? What should I explain about my work?

do in the next project?

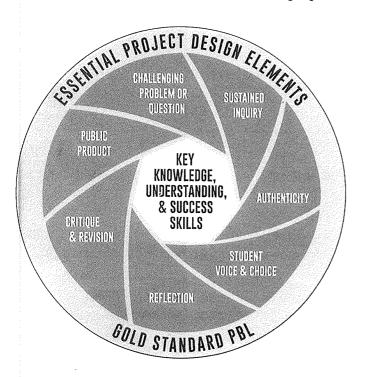
Gold Standard PBL: Essential Project Design Elements

Buck Institute for Education 2015



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



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.

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).

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 indepth 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 "realworld" 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.

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.

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 commonsense 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).

Essential Project Design Elements Checklist

Whatever form a project takes, it must meet these criteria to be Gold Standard PBL.

Does the Project Meet These Criteria?		?
KEY KNOWLEDGE, UNDERSTANDING, AND SUCCESS SKILLS The project is focused on teaching students key knowledge and understanding derived from standards, and success skills including critical thinking/problem solving, collaboration, and self-management.		
CHALLENGING PROBLEM OR QUESTION The project is based on a meaningful problem to solve or a question to answer, at the appropriate level of challenge for students, which is operationalized by an open-ended, engaging driving question.		
SUSTAINED INQUIRY The project involves an active, in-depth process over time, in which students generate questions, find and use resources, ask further questions, and develop their own answers.		
AUTHENTICITY The project has a real-world context, uses real-world processes, tools, and quality standards, makes a real impact, and/or is connected to students' own concerns, interests, and identities.		
STUDENT VOICE & CHOICE The project allows students to make some choices about the products they create, how they work, and how they use their time, guided by the teacher and depending on their age and PBL experience.		
REFLECTION The project provides opportunities for students to reflect on what and how they are learning, and on the project's design and implementation.		
CRITIQUE & REVISION The project includes processes for students to give and receive feedback on their work, in order to revise their ideas and products or conduct further inquiry.		
PUBLIC PRODUCT The project requires students to demonstrate what they learn by creating a product that is presented or offered to people beyond the classroom.		



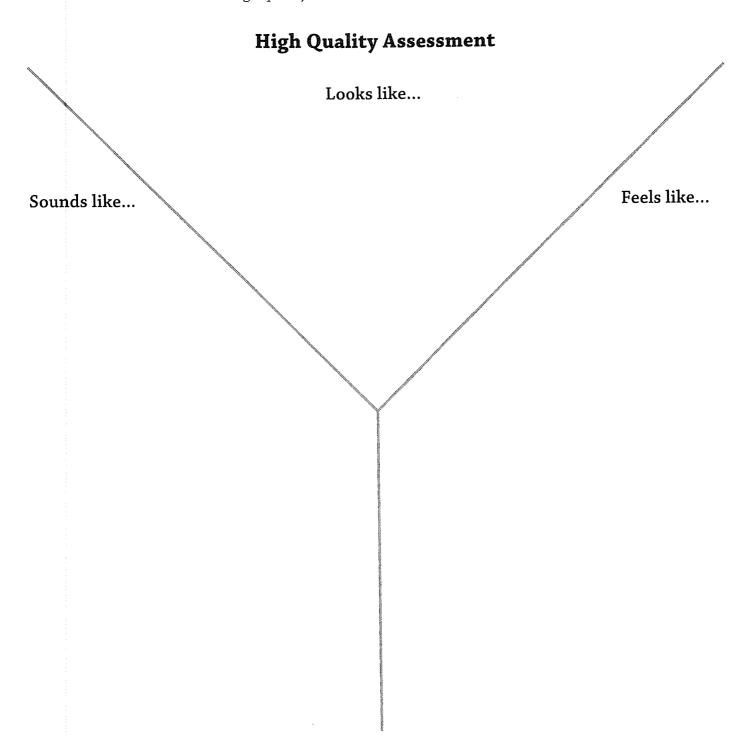
Project Based Learning Design Rubric

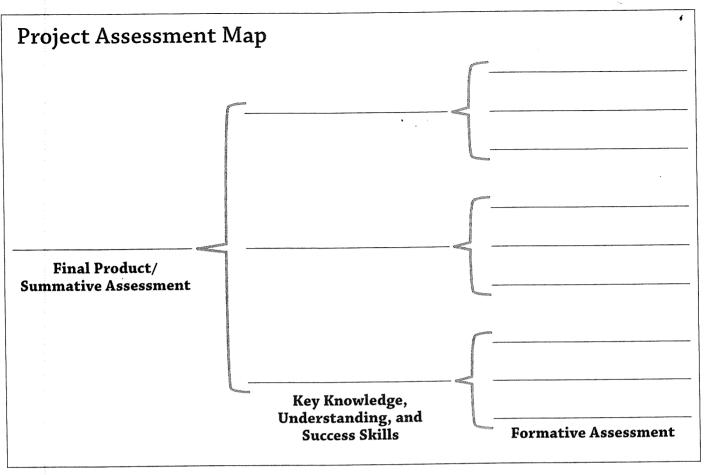
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			they learned	items learned

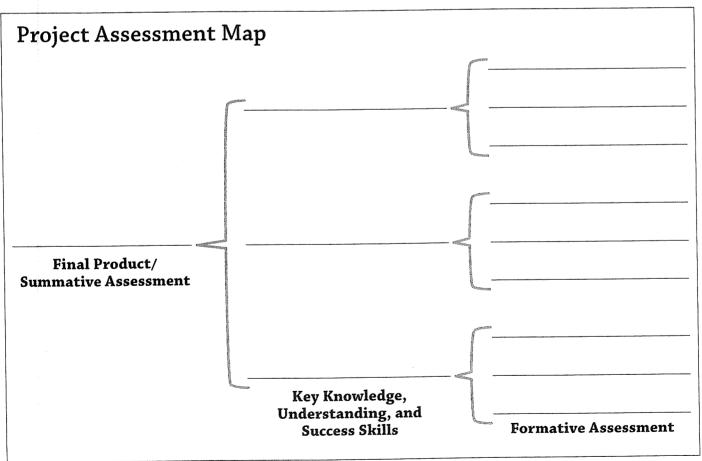
TASK 2.1 High Quality Assessment

Before planning the assessments for your project, it is important to consider what high quality assessment is. On the y-chart below, record descriptors for the following:

- What high quality assessment looks like (e.g., examples of assessment; actions students take when completing a high quality assessment)
- What high quality assessment feels like (e.g., student affect; teacher experience)
- What high quality assessment sounds like (e.g., what language would you hear students use; what is the tone of conversations about high quality assessment)







SHOP



Blog

ABOUT BIE

May 24, 2012

What Does It Take for a Project to be "Authentic"?

John Larmer, BIE

Everyone thinks that Project Based Learning has something to do with "authentic" learning. But not everyone agrees what this means. I think there could be a sliding scale of authenticity in PBL.

"Not authentic" means the work students do does not resemble the kind of work done in the world outside of school or it is not intended to have an effect on anything apart from an academic purpose. A not-authentic project would involve the kind of assignment students are typically given in school: compose an essay, create a poster or model, write and present a book report, or make a PowerPoint presentation on a topic they've researched. Beyond their teacher and maybe their classmates there's no public audience for students' work, no one actually uses what they create, and the work they do is not what people do in the real world.

"Somewhat authentic" means students are doing work that simulates what happens in the world outside of school. In a project that is somewhat authentic, students could play a role: scientists, engineers, advisors to the President, or website designers who are placed in a scenario that reflects what might actually occur in the real world. Or students could create products that, although they are not actually going to be used by people in the real world, are the kinds of products people do use or create.

"Fully authentic" means students are doing work that is real to them — it is authentic to their lives — or the work has a direct impact on or use in the real world. The "real world," by the way, could still be school, which is a very real place for students. In these projects, students might advocate for a cause; take action to improve their community; perform a service for someone; create a physical artifact to display or distribute, or express their own ideas about a topic in various media for particular audiences.

A project can be authentic in four ways, some of which may be combined in one project:

- 1. It meets a real need in the world beyond the classroom or the products students create are used by real people.
 - Students propose designs for a new play area in a nearby park.
 - ▶ Students plan and execute an environmental clean-up effort in their community.
 - ▶ Students create a website for young people about books they like.
 - ▶ Students write a guide and produce podcasts for visitors to historic sites in their city.
 - > Students serve as consultants to local businesses, advising them on how to increase sales to young people.
 - > Students develop a conflict resolution plan for their school.
- 2. It focuses on a problem, issue, or topic that is relevant to students' lives the more directly, the better or on a problem or issue that is actually being faced by adults in the world students will soon enter.
 - ▶ Students create music video PSAs to raise awareness of child nutrition and health issues in their community.
 - Students learn physics by investigating the question, "Why don't I fall off my skateboard?"
 - ▶ Students learn about stray pets in their community and recommend what people should do.
 - ▶ Students decide whether the U.S. should intervene in a conflict inside another country.
- 3. It sets up a scenario or simulation that is realistic, even if it is fictitious.
 - ▶ Students are asked by the Archbishop of Mexico in 1819 to recommend a location for the next mission in California.
 - ▶ Students act as architects designing a theatre that holds the maximum number of people, given certain constraints.
 - ▶ Students are United Nations advisors to a country that needs advice about how to start a democracy.
 - ▶ Students recommend which planet should be explored by the next space probe as they compete for NASA funding.
 - >> Students are asked to propose ideas for a new TV reality show that educates viewers about science topics.
- 4. It involves tools, tasks, or processes used by adults in real settings and by professionals in the workplace. (This type of authenticity could apply to any of the above examples of projects.)
 - ▶ Students investigating the physics of skateboarding test various surfaces for speed, using the scientific method and tools scientists use.
 - Students exploring the issue of how we make and lose friends conduct surveys, analyze data, record video interviews, and use online editing tools to assemble their presentations.
 - Students acting as U.N advisors to an emerging democracy analyze existing constitutions, write formal reports, and present recommendations to a panel.

I agree with purists that fully authentic projects are usually the most powerful and effective ones, because they are so engaging for students and allow them to feel like they can have an impact on their world — so the more of them, the better. But if you can't get there yet, don't feel like you're failing the authenticity test in your projects. Some is still better than none!

Name of Project:		Duration:
Subject/Course:	Teacher(s):	Grade Level(s):
Other Subject Areas to Be Included:	ncluded:	
And the second s		
Project Summary		
Includes student role, issue, problem or challenge, action taken or purpose/beneficiary.		
Driving Question		
A driving question meets the following criteria: engaging for students, open-ended and aligned with learning goals.		
Entry Event		
An entry event should engage and intrigue to provoke students to want to know more about this topic.		
Public Product	Team:	Presentation Audience
		Class
A Public Product should be one of the following: A tangible		School
thing, presentation, or a		Community
	Individual:	Experts
		Web
		Other:

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Competency Attainment	Level 1: Level 2:				
Please provide a list of the competencies included and at what level they are achieved through this PBL.	Level 3:				
Consider what students should understand, know and be able to do as a result of the PBL?					
Formative Assessments	Quizzes/Tests		Practice F	Practice Presentations	
(During Project)	Journal/Learning Log	д Год	Notes		
	Preliminary Plan	Preliminary Plans/Outlines/Prototypes	Checklists	a	
	Rough Drafts		Concept Maps	Maps	
	Online Tests/Exams	ams	Other:		
Summative Assessments	Oral Presentation, with rubric	n, with rubric	Written Fi	Written Final, with rubric	
	Multiple Choice/8	Multiple Choice/Short Answer Test	Peer Evaluation		
	Essay		Self-Evaluation	ıation	
	Other:				
Reflection Methods (During and/or the End of the Project)	(Individual, Group, and/or	Journal/Learning Log		Focus Group – Success Counsel	
`	200	Whole-Class Discussion		Fishbowl Discussion	
		Survey		Other:	
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Notes: athletic; confident; popular	Tech Skills L	Art Skills L	Behavior M	Leadership M	Acad. Ability M
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Н	Tech Skills
M	Art Skills
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sometimes due to illness	Notes: coope	Tech Skills	Art Skills	Behavior	Leadership	Acad. Ability
ue to illness	Notes: cooperative, but misses	L	M	H	M	M

sometimes due to illness	Notes: coope	Tech Skills	Art Skills	Behavior	Leadership	Acad. Ability
ue to illness	Notes: cooperative, but misses school	L	M	Н	M	M

Notes: anger issu	Tech Skills	Art Skills	Behavior	Leadership	Acad. Ability
Notes: anger issues; controlling; likes to	M	L	М	H	Н

Leadershin	Acad. Ability
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Notes: intell	Tech Skills	Art Skills	Behavior	
Notes: intelligent; bit of a know-it-all	M	M	Н	

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Acad. Ability

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Leadership

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Notes: team player; good attitude; medicated?	notes: team medicated?	Notes: Sp Ed; sometimes loses focus; skips breakfast?	Notes: Sp Ed; son skips breakfast?
			;
M	Tech Skills	Н	Tech Skills
H	Art Skills	M	Art Skills
H	Behavior	M	Behavior
M	Leadership	L	Leadership
L	Acad. Ability	M	Acad. Ability
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Notes: sets high go (speech impaired)	Tech Skills	Art Skills	Behavior	Leadership	Acad. Ability
Notes: sets high goals; athletic; Sp Ed (speech impaired)		M	M	Н	H
(Ed					

drawing skills

Notes: Gifted?; shy but excellent

Tech Skills

二

Art Skills

H

Behavior

z

Notes: loner: easily frustrated: has	Tech Skills M	Art Skills L	Behavior M	Leadership L	Acad. Ability H
ıstrated; has					П

Notes: EL (Italian); mature; handy

Notes: EL (Italian); willing to follow others, but with strings attached; lies	Tech Skills L	Art Skills M	Behavior L	Leadership L	Acad. Ability L	
ng to follow attached; lies						

Art Skills	Behavior	Leadership	Acad. Ability	
М	H	Н	H	

ethical; chirpy; small Notes: Ivy League bound; competent;