Project-Based Learning with Training Wheels

PAUSD Learning Summit
Feb. 16, 2018
What is Project-Based Learning (PBL)?

Discuss with a partner:

What is the difference between assigning a project and doing project-based learning?
NEW MODEL for GOLD STANDARD PBL:

ESSENTIAL PROJECT DESIGN ELEMENTS

- Challenging Problem or Question
- Sustained Inquiry
- Public Product
- Critique & Revision
- Reflection
- Student Voice & Choice

KEY KNOWLEDGE, UNDERSTANDING, & SUCCESS SKILLS

AUTHENTICITY
Launching

- How do you introduce projects to your class?

Here is an example of a project launch.
What is Project-Based Learning (PBL)? *

Here are the overarching pieces to remember:

- Student learning goals
- Essential project design elements
- Project based teaching practices

For more info., look at “The Main Course; Not Dessert” article.
Why do students need PBL?

Skills students develop during a PBL unit are:

- Critical thinking
- Collaboration
- Communication
- Creativity/Innovation
- Cross-curricular thinking

*Students need these 21st century skills!*
1) Key Knowledge/Understanding/Success skills

- Addressing the standards (i.e. learning targets)
- Apply knowledge to real-world scenarios
- Success skills - problem solving, collaboration, self-management
  - Gained through critically thinking about the subject
- What are the learning targets for the unit project?
- How will students dive deeply into the content?
Example of Knowledge/Skills/Understanding

From **Global Crisis Project**: *

**Knowledge Targets**
- definition of overpopulation
- meaning of exponent
- identify exponential patterns
- growth v. decay

**Skill/Reasoning Targets**
- Derive rules of exponents
- Simplify numerical & algebraic expressions w/ exponents
- Graph exponential function given table of values
- Describe real-life situations of exponential growth & decay
- Draw scatter plot - make predictions
Essential Project Design Elements *

2) Develop Essential Question or Real-world Problem

- Based on *meaningful* problem to solve or a relevant question that needs to be answered.
- Meaningful questions will help create sustained inquiry.
- Must ensure *sustained inquiry*
Characteristics of a Good Essential Question

1. **Open-ended** - typically will not have a single, final, and correct answer.

2. **Thought-provoking and intellectually engaging** - sparks discussion/debate.

3. **Higher-order thinking** - analysis, inference, evaluation, prediction.
   a. It cannot be effectively answered by recall alone.

4. Points toward **important, transferable ideas** within or across disciplines.

5. Raises **additional questions** - sparks further inquiry.

6. Requires **support and justification** - not just an answer.

7. **Recurring** - question can and should be revisited again and again.

Use the [Question Formulation Technique](#) to help students design their own questions.
Example of Essential Question or Problem

From the Global Crisis Project: *

Can the earth sustain our growing population?

How is this a meaningful question?

Will it sustain student inquiry through the project?
3) Authenticity (a.k.a. Real-world)

To decide on authenticity consider:

- context,
- processes,
- tasks & tools,
- quality standards,
- criteria & constraints, and
- impact.

- Help students feel connected to their own identities, concerns, and interests.
- Set up a realistic scenario to model what professionals do in the field.
Let's do an activity to explore authenticity! *

Decide which of the choices on the PBL Authenticity Quiz are “authentic” and explain how or why to a partner.

“What Does it Take for a Project to be Authentic” - by John Larmier
How do we evaluate “authenticity”? *

There is a Sliding Scale of Authenticity:

**Not at All =**

does not resemble the real-world (e.g. essay, book report, powerpoint)

**Somewhat =**
simulates what happens in world (e.g. role play, create products that may be used by real people)

**Fully =**
real & connected to students’ lives or has direct impact or use in real-world (e.g. advocate a cause, service learning, physical artifact, expression in media)
# Four Ways to Make a Project Authentic

<table>
<thead>
<tr>
<th>1) Addresses a real need</th>
<th>2) Focus on a relevant issue</th>
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<td>Example: Work with the counselors to design a conflict resolution plan for school.</td>
<td>Example: Plan an investigation to solve speeding issues near schools in Palo Alto.</td>
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<tr>
<td>3) Sets up a real-world scenario or simulation</td>
<td>4) Includes real processes used by professionals</td>
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<td>Example: Students develop recommendations to help NASA colonize Mars.</td>
<td>Example: Use scientific method and speed detectors to collect data on cars driving by schools.</td>
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4) Creating Opportunities of Voice and Choice

- Creates sense of ownership
- Students need to have input and control

- What opportunities will students have to make decisions about the process or product?
Example Opportunity for Voice and Choice

From *Global Crisis Project* project:

Choice provided through what technology and data students want to use.

Voice is expressed through choices/decisions about how data will be used.
Essential Project Design Elements *

5) Reflection, reflection, reflection

- Must be ongoing throughout the process
- Focus on the learning, project design and implementation
- Can occur informally, and can also be explicit
- Are students learning the targets and objectives?
- Do students need to adjust what they are doing to answer the driving question?
Austin’s Butterfly

Let’s watch a video together.
6) Critique and Revision - It's a Cycle!

- This is done as follow-up to reflections, but can also feed into more reflection.
- Students make changes to their project in order to better address the driving question.
- *What processes can you include to help students get feedback, revise ideas, and conduct further inquiry?*
Example of PBL Reflections

- Surveys
- Project debriefs (example)
- Journals/learning logs
- Discussions/dialogue
- Focus groups
- In addition to traditional teacher feedback.

- What are some other ways for students to reflect on their PBL project?
Essential Project Design Elements *

7) Public Product

- Motivates and drives students toward a real goal
- Does need not be so BIG at first…
  - Start small and work into more complex techniques
- Making it “public” does not need to be taken literally
- Make sure students are well prepared for this last element
Examples of Publicizing a Product

- Presentation to expert(s)
- Gallery walk in class
- Share with another grade level
- YouTube
- Film festival
- Blogs
- School news outlet (e.g. KJLS)

Global Crisis Project:

- prepare presentation with multiple representation of data to advise U.S. government
- present to panel of scientists

What are some other ways that students can publicize their projects?
“Do I have to include all elements? It’s overwhelming?”

- You don’t have to change everything at first.
- Start with one or two elements to try, then include other elements as the year progresses.
- Reflect and revise your unit projects over time.
- Provide scaffolds when making the shift.
“How do I make this into a PBL unit?”

Using **1 of 2 sample cases** to “fix,” let’s turn sample projects into a PBL unit.

**Sample cases:**
1) Read 1 banned book and either: A) make an enticing brochure for it, or B) write an essay taking a side about whether or not the book should be banned.
2) Research a virus or bacteria, then create a 3-D model that describes ALL the important parts of the virus or bacteria.
What's different? What's similar?

Here are links to PBL-ized project samples:

- Banned in America
- Catch the Fever
- Global Crisis Project
Launching

● How will you introduce the project-based unit?
● Grab students with an idea
● Get buy-in through brain-based novelty
● Stimulate curiosity
● Prime the pump for investigation

Here is an example of an intriguing launch.
More Examples for Launches

- Staircase to nowhere - document staircases around the school - How would you define a staircase? How would you describe one to an alien from another planet?

- Society is recently experiencing various communicable diseases - invite a speaker from the public health department or a microbiologist from a local university.

- Literary crime scene investigation - observations v. inferences - exploring how criminal cases can play out in court
How Can I Manage a PBL Project? *

- Calendaring - hard due dates, loose due dates, buffer zones
- Establish routine check-ins and checklists
- Use group huddles to coordinate tasks
- Scrumboard - voice & choice, objectives, reflection stops, feedback loops
- Sticky notes or Schoology posts
- BYOM-Bring Your Own Materials
- Provide useful templates, handouts, graphic organizers

Here is a video from the Buck Institute about Managing Projects.
Assessing a PBL unit*

- Are your learning targets student-friendly?

- Are the requirements clear? ([sample checklist](#))

- What will the [rubric](#) include?

- How will students [collaborate](#), critique and revise work?

- What do students need in order to be successful?
PBL Resources

- Buck Institute for Education: bie.org
- Edutopia: edutopia.org
- Partnership for 21st Century: p21.org
- Teach21 PBL: wveis.k12.wv.us/teach21/public/project/Mainmenu.cfm
- Deeper Learning: deeperlearning4all.org/about-deeper-learning