21st-Century Literacy Skills

Designing PBL Projects to Increase Student Literacy

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Project-based learning (PBL) is quickly growing as a legitimate pedagogical model for delivery of instruction. Professional development is occurring internationally to support implementation, and even lone teachers in schools are seeking out resources to build PBL projects on their own. This is because educators are finding a great amount of success in a variety of quality indicators and measurements.

Many studies have been conducted that show PBL as an effective way to deliver instruction and assessment, and teachers continue to leverage it as an engaging model of learning to learn content and skills across the curriculum. In the case of literacy, students are not only learning the skills to read, write, and speak effectively, but they are also applying and synthesizing their skills in meaningful contexts. A PBL project focused on targeted standards makes the learning "stick" through meaningful application to a real-world context or scenario.

Does PBL Really Work?

There is a lot of research out there to support many aspects of PBL projects. When PBL is compared with more traditional instruction, characterized by the extensive use of textbooks, lecture, and other "sit and get" methods of learning, there are many ways PBL achieves. In terms of academic content, when students learn through PBL, they retain the content longer and have a deeper understanding of it (Penuel & Means, 2000). Regardless of the content, whether math, language, or literacy, students better improve content area skills as well as content area literacies (Halvorsen et al., 2012).

In fact, a study was conducted over years that compared test scores between a PBL U.S. politics and government class and a non-PBL economics class. The PBL class was given five different projects over the course of the year that were aligned to the major content assessed on the AP exam. The PBL students performed as well as or even better than traditionally taught students in the non-PBL class on the AP test and better on a complex scenario test (see bie.org/object/document/study_of_bie_project_based_economics_units). Here PBL shows that it can increase student achievement in not only knowledge and comprehension but also complex, critical thinking skills.

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One of the major gains PBL supports is in the development of 21st-century skills. In PBL, students are intentionally taught as we assess these skills, which include collaboration, critical thinking, creativity, and communication. Collaboration is not something we often intentionally scaffold in a unit, but PBL calls for us to teach and scaffold these skills along the way along with the content standards. Communication, whether spoken or written, is of course embedded within the English language arts (ELA) curriculum, but most educators and stakeholders would articulate that these other skills are critical to student achievement in all subject areas. In an economics class, students who engaged in a project-based curriculum outscored students who received traditional instruction on the standardized test of economic literacy, particularly in the areas where students have to apply their knowledge and think critically to solve real-world problems (Finkelstein, Hanson, Huang, Hirschman, & Huang, 2010).

In addition, students engaged in PBL improve their collaboration skills, such as resolving conflicts (Beckett & Miller, 2006). The one payoff that itself may be difficult to truly measure, however, is engagement. Educators who consistently implement effective PBL

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constantly say their students are more engaged in learning. In PBL classrooms, students have a better attitude toward their learning and show better attendance (Thomas, 2000). When students are engaged, their literacy skills increase. PBL can provide that framework for engagement (Guthrie, 2004).

Project-Based Learning Versus "Doing Projects"

If you intend to truly do PBL in the classroom, you need to know the distinction between PBL and "doing projects." We all have done projects in the classroom but, traditionally, they occur after a unit of instruction. For example, we might teach a unit on persuasive writing. In that unit, we might include all the normal instructional scaffolding and differentiation that is required for all students to meet the learning objectives. After that unit, we might ask students to do a project where they use those skills in some context, often relevant or fun. This is what you might call a "dessert project" (Larmer & Mergendoller, 2010a). Why do we do projects? Students often find them engaging. The project often connects the learning objectives to a relevant audience or context. Students may get choice in the performance assessment or products they are delivering.

In PBL, however, we leverage what already works with projects and improve. Sometimes our "dessert projects" have gaps. The products don't always show the learning we want, or sometimes the parent does the project. Sometimes the project is just a fun activity that isn't connected to the learning. These are all possible gaps that can occur, and PBL can help to not only mitigate them but also improve student engagement for an entire unit of instruction.

Let's look at an example of how one teacher turned a traditional "dessert project" into a full PBL project. Instead of doing a project after a unit of persuasive writing, Mr. Thompson, a ninth-grade ELA teacher, decided he wanted to create a PBL project where students would learn the skills of persuasive writing for an authentic context of problem. He noted that it would soon be election season and considered a real-world connection to create a need for students to learn literacy skills such as reading, writing, and speaking and listening.

Mr. Thompson searched online and found a project that he might borrow and make work for his classroom: The Propositions Project, implemented by educator Justin Wells at the Metropolitan Arts and Technology High School. He decided to use the idea of this project and have students investigate propositions on the upcoming election ballot, take a side on an issue, and persuade others to join them on that side of the argument. Along the way, Mr. Thompson would still need to teach and scaffold the material, but now there was an authentic reason to do so. That is one of the key pieces of PBL: Teachers situate the learning in a real-world challenge, scenario, or context to create relevance and rigor.

> *"A project is meaningful if it fulfills two criteria. First, students must perceive the work as personally meaningful, as a task that matters and that they want to do well. Second, a meaningful project fulfills an educational purpose. Well-designed and well-implemented project-based learning is meaningful in both ways."*
>
> (Larmer & Mergendoller, 2010b)

In PBL classrooms, students don't just learn the content because the teacher dictates it, they are engaged to learn because the learning is immediately relevant, rather than relevant after the unit of the instruction. In addition, the majority of content is taught through the project. There is little to no preteaching, as the teaching and scaffolding occurs within the course of the entire project. This creates a "Main Course" project (Larmer & Mergendoller, 2010a). In order to design an effective project that isn't just a "dessert" project, you must consider a number of essential elements (for a more detailed explanation, see "8 Essentials for Project-Based

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Learning" by Larmer & Mergendoller, found here: bie.org/object/document/8_essentials_for_project_based_learning. Let's walk through these essential elements as a guide for designing effective projects to build literacy skills and content.

Selecting Content Standards and Skills

In order to ensure a project isn't just busy work or simply a fun activity unconnected to learning, a teacher designs PBL projects with the end in mind. Teachers select the standards they want students to learn and consider how these standards will be assessed both formatively and summatively. PBL projects often hit multiple learning outcomes, sometimes in one subject area, sometimes across multiple subject areas. Literacy teachers have a lot of flexibility here. An ELA teacher could design a project to meet specific standards in just the ELA classroom, or an ELA teacher might partner with a teacher in another content area where the literacy standards and content area standards fit for integration. For the Propositions Project, Mr. Thompson focused on ELA standards, but also drew on standards from social studies, including content around branches of government as well as research standards. The Propositions Project focused on key literacy standards around persuasive writing, the writing process, creating effective presentations, and reading informational texts. If we were to translate this to the Common Core ELA standards, they would include the following:

CCSS.ELA-LITERACY.RI.9-10.6
Determine an author's point of view or purpose in a text and analyze how an author uses rhetoric to advance that point of view or purpose.

CCSS.ELA-LITERACY.RI.9-10.8
Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is valid and the evidence is relevant and sufficient; identify false statements and fallacious reasoning.

CCSS.ELA-LITERACY.W.9-10.1
Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.

CCSS.ELA-LITERACY.SL.9-10.4
Present information, findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to purpose, audience, and task.

Projects are not designed without content standards. Mr. Thompson knew he wanted to teach and assess this content through a PBL project and designed it accordingly. Some might even consider some of the standards as power standards. These standards require a significant chunk of time in the calendar and, therefore, can create space for a PBL project. As teachers select appropriate content for a PBL project, they should not only consider power standards but also these three reflective questions:

1. Who uses this content in the real world?
2. How do they use this content?
3. How might I create a similar context in my classroom?

These three questions can allow teachers to select content standards that are aligned to an authentic context. If teachers are struggling to answer these questions, they can look at other standards in the curriculum for which to design a PBL project. If teachers intend to go for a more integrated project, for instance where ELA content and skills are being taught alongside the same in science or math, then teachers need to find the places where it fits, both chronologically and thematically. The good news is that writing, reading, speaking, and listening skills are used in all content

areas, which helps make PBL an authentic fit for integrated curriculum. If integration seems "too big" to tackle, teachers should focus on power standards that take 2 or 3 weeks to attach in a project. This allows for a tighter project that succeeds rather than a project that is "too big."

A Meaningful Driving Question

Another key element of project design is the driving question. Many teachers may find this similar to a guiding or essential question; however, driving questions have specific criteria to a PBL project. These criteria actually make writing the driving question quite a challenge. The driving question should capture the spirit and purpose of the project. Students should be able to read and understand it and know the general sense of the project. In fact, the driving question should help frame the "so what" of the project, where students not only have a sense of what they will learn but also why it matters. It shouldn't sound like a teacher and be overly academic and wordy. It creates a sense of challenge or interest for the students.

Lastly, the driving question needs to be answered by the final products and/or assessment that students would turn in. Whether students submit a poster or a media campaign, make a presentation, or send a letter, it aligns directly to what the driving question asks, but still allows for a level of open-endedness. These are all key criteria for a good driving question. Some driving questions are debatable, some are product oriented, and some are even role oriented. There is no perfect template per se for a driving question, but there are criteria. A bad driving question can close doors to the learning, while a good driving question opens doors to the learning.

Mr. Thompson came up with this driving question: "How can we convince voters to vote a certain way on an issue?" The question most likely went through many drafts. This is common, as the right driving question takes time to write and refine. Some of the initial drafts might have sounded more academic, such as "How do we use rhetorical strategies to influence voters?" or not exactly capture what the students would be doing in the project, such as "How do voters choose how and why to vote?" This reflects not only the challenge of writing the driving question but also that revision is essential for teachers in designing them.

Students are the key audience of the driving question, but the driving question also is for the teacher. A teacher can unpack his or her driving question to see what questions students might come up with and plan instruction and scaffolding accordingly. Mr. Thompson, for example, took time to unpack his driving question in order to anticipate the questions students would come up with. These might include "What issues are we exploring?" "Which voters are we convincing?" or even "What are the best ways to convince people?" All of these questions would need to be intentionally planned for, and Mr. Thompson needed to know what his role as the teacher would be, and the lessons he would need to plan for students.

Voice and Choice in Authentic Products

Performance assessment is key in PBL, where we move assessment away from the traditional multiple choice or essay assessments to more authentic products that can showcase the learning and look more like work in the real

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world. We don't have to do the traditional essay all the time; we can let students write proposals or letters. If we want our students to feel like the work matters, then they should do work that looks and feels like real-world work. Through authentic products comes engagement and relevance.

When teachers design PBL projects, they need to select products that will align to the content standards and skills they intend to teach and assess, but then also look for opportunities for voice and choice in the products. For example, if you intend to assess speaking and listening skills, then you need to select appropriate products. Even then, there can be choice. We can assess speaking and listening skills through formal presentations, podcasts, speeches, pitches, and even news broadcasts. Similarly, we can assess writing and reading skills through letters, proposals, websites, press releases, brochures, storybooks, and field guides, just to name a few. This is also where technology can be meaningfully integrated, to showcase student learning. Some of these products might be as an individual, some of them might be as a team. They key here is to have an effective rubric that is connected to the standards.

Mr. Thompson intended to assess a variety of literacy skills. To assess writing and reading skills, he has students draft proposals of the ballot initiative they wanted to investigate as a team. In addition, individually they would write a persuasive speech where they explained their position on the issues backed up by extensive research. To assess speaking skills, there would be smaller presentations on the pros and cons of each side of ballot initiatives, as well as a polished team campaign commercial and individual speech. These products were authentic and directly connected to the content. Students had a choice in the ballot initiative they would investigate as well as their stance. Student voice would also be expressed in how they constructed their written pieces and campaign commercials.

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Creating the Need to Know and Inquiry Through the Entry Event

The overall design of this project, from the driving question to the authentic challenge, should create a "need to know" the content standards and skills, but there is also another crucial step to launch the project. This is called the entry event. All projects kick off with some of sort of event that gets students excited about what they will learn and, most important, get them asking questions about the project they will explore. Entry events can be many things. Some teachers use interesting videos, others use mock correspondence letters that explain the task. However, entry events can also be provocative readings or statistics, art or music, a guest speaker, a field trip, or even a fun simulation or activity. The possibilities are endless.

Many of these activities are short and can be combined to increase the engagement of the project launch. The key thing to keep in mind is that the entry event is not intended to push out content or skills related to the project. Instead, it intended to spark inquiry and engagement to be able to teach these skills later. As teachers design their entry events for their projects, they should keep this in mind. If the initially planned event is heavy on content or learning a skill, it is better for later in the project when students will want to know about that content or skill.

Mr. Thompson launched his project by showing campaign ads from past and present, from ads that advocated for Eisenhower for President to recent Obama for President ads.

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He also showed students former student-created and company-created ads for local propositions. He used these not only to make students laugh but also to be intrigued at the variety and the power of these ads.

Coupled with the entry event is what many teachers call the Need to Know activity. After a teacher excites students to begin the project and learning connected with it, he or she presents the basic project overview, including the driving question that helps to focus the inquiry. Students are then asked what they need to know in order to accomplish. Some teachers also ask students what they already know as a scaffold.

Students generate these ideas and questions individually and/or in groups, and the teacher records them on a Need to Know list. This list is not only evidence of inquiry but also student ownership over the inquiry. The teacher can use this list to prepare lessons and scaffolds to ensure students are getting the content and skills they need to accomplish the project. For example, when Mr. Thompson did the Need to Know activity with his students, these were some of the questions that were generated:

- "What is the best way to persuade voters?"
- "Which voters are we persuading anyway?"
- "What propositions are on the ballot?"
- "How do propositions work in the government?"

Mr. Thompson knew these sorts of questions would arise but also knew he needed to plan instruction to address these questions. For instance, he planned activities where students did debates and mock arguments over low-stakes teen issues, and also provided direct instruction on rhetorical techniques and devices. He also modeled speeches of famous orators. These were all to address one of the questions students generated. In addition, this list was revisited often throughout the project not only to make sure students were on the right track but also to help the teacher reflect on instruction and assessment practices.

Teaching and Assessing 21st-Century Skills

If we ask ourselves to describe the ideal graduate, some of us may mention "knowledgeable" or "have some basic skills," but all of us would describe our ideal graduate as "collaborative," "creative," "effective communicator," and "critical thinker." These are what many refer to as the 4Cs, and they are among the most popular of 21st-century skills. There are many others, including technology literacy, health literacy, and life skills, and PBL calls for these skills to be taught and assessed along with content.

This is an area of growth for many teachers. Most of us entered the profession with skills to teach our content area, but not the skills to teach one or more of the 4Cs explicitly. Many would also argue that we don't the have the time to do this in addition to content. This is actually a misunderstood argument. It's not about "or," it's about "with." The 4Cs are taught within the context of learning discipline-specific content and skills. For example, we learn to critically think with poetry. We learn to collaborate to produce media. We work to be creative in persuading others. We learn to communicate around a news article. We use the content as the vehicle to learn the 4Cs.

There is some good news for teachers around this area. Many standards have the 4Cs embedded in them, as well as other aspects of 21st-century skills. In the ELA Common Core, there is a standard that includes language

around collaboration in all grade levels K–12. Here are the kindergarten and 12th-grade standards:

> CCSS.ELA-LITERACY.SL.K.1 Participate in collaborative conversations with diverse partners about kindergarten topics and texts with peers and adults in small and larger groups.
>
> CCSS.ELA-LITERACY.SL.11-12.1 Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 11-12 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.

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If you delve more into the Common Core, you'll find other language around critical thinking and communication skills. The key is to find these standards to leverage their assessment.

To assess these 21st-century skills, teachers can rely on assessment tools they have used before. The first step is to have a good rubric that articulates the 21st-century skill at an appropriate cognitive level. Let's take creativity as an example. Creativity is broken down into quality indicators:

> "Use a wide range of idea creation techniques (such as brainstorming)
>
> Create new and worthwhile ideas (both incremental and radical concepts)
>
> Elaborate, refine, analyze and evaluate their own ideas in order to improve and maximize creative efforts (Framework for 21st Century Learning. Partnership for 21st Century Skills; www.p21.org/about-us/p21-framework/262)"

Once unpacked in a rubric, creativity can be assessed both formatively and summatively. Teachers can use their variety of assessment tools to make sure students are improving specific quality indicators of creativity. A teacher might assess creativity in the final product, but should also use tools like observations, reflections, exit tickets, graphic organizers, and journal entries to assess formatively. Like other formative assessments, these can be used to plan scaffolds to improve creative skills. A teacher can look at one of the aforementioned indicators and select a scaffolding activity to allow students to "elaborate on their ideas," or "use a wide range of idea creation techniques."

Mr. Thompson focused on communication and collaboration in his project. He selected appropriate rubrics for and scaffolded these 21st-century skills. He used this sample collaboration rubric and this presentation rubric. He had students work in teams and write team-operating agreements. He had students reflect often on their collaborative abilities and self-assess their collaborative abilities as the project progressed. He also used traditional literacy lessons to have students improve their communication skills. Students gave multiple practice presentations, got feedback from their peers and teachers, and analyzed example presentations. Just like Mr. Thompson, if we value 21st-century skills as much as content, then they must be taught and assessed within a PBL project. Here students improve both literacy and 4Cs skills.

Ongoing Assessment, Revision, and Responsive Instruction

One common misunderstanding of PBL is the level at which students are in control of the learning. There is a continuum of this control, but even at the highest level of student control, the teacher is actively involved in facilitation, assessment, revision, and instruction. After the project is launched, the inquiry sparked and ready, the teacher must still intentionally plan for and anticipate his or her role in the project.

Teachers need to plan intentional formative assessments during a project. These formative assessments can be varied. It might be a draft,

a discussion, a quiz, an interview, check-in on the Need to Know list, or even an exit ticket. These not only hold students accountable but also allow the teacher to check for understanding and plan instruction accordingly. These formative assessments might be teacher directed but also can be peer directed and self-directed. A self-assessment on content or 21st-century skills along the way can build reflection and serve as a great check-in for the teacher. Similarly, a peer critique of products in progress can allow students to get valuable feedback from other students and serve as a great formative assessment for the teacher. Although there is space in the format and agent of the formative assessment and critique process, it is critical that is planned to ensure not only student learning but also high-quality work.

This formative assessment process allows the teacher to reflect on when he or she needs to step in to provide scaffolding for students. In addition, a teacher should rely on his or her backwards design skills to anticipate student questions and new learning that will occur in the project. In other words, a PBL teacher, like all great teachers, begins planning with the learning outcomes in mind and plans assessment and instruction accordingly. This addresses another misconception of PBL: PBL does not do away with the great tools that teachers have to help students learn. On the contrary, these scaffolds and lessons that teachers already do are critical to ensure student-learning success. The difference is that these activities do not occur in a vacuum but instead within the context of the PBL project.

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Although PBL requires flexibility, it also allows for intentional differentiation. These lessons and scaffolding may not occur exactly at the time you anticipate, but they will mostly likely still occur, either as whole-group instruction or as a means to differentiate instruction. When teachers formatively assess students, they can look at their prepared scaffolding lessons to create "just in time" learning aligned to the content and skills of the project. This is where literacy teachers have a great opportunity to continue to use the instructional activities they have already used.

For instance, teachers can use graphic organizers to help students organize their writing or thoughts from a reading. Teachers can uses quick write techniques to reflect as well as Socratic seminars to discuss a provocative reading related to the project. The workshop model can be used to improve writing skills, and direct instruction can be given on specific grammatical errors or reading decoding. These are a few examples of how literacy instruction still occurs in the context of the project in which fluid, formative assessment, revision, and instruction is still intentionally planned and executed.

Mr. Thompson used the Need to Know list as a key tool for formative assessment. After a few days of instruction aligned to their first visit to the list, he had students begin research on their ballot initiatives. He collected notes and sources. He noticed some students were still struggling with citation and provided some small-group modeling. As students began crafting their proposals, he noticed the entire class was struggling with using textual evidence in their writing. He then provided whole-class modeling and practice with a past ballot initiative. He used think-aloud strategies, group work, and independent practice to scaffold this targeted learning for students. Students then returned to their proposal drafting, and Mr. Thompson collected drafts to provide teacher feedback. This is one snapshot of how the formative

assessment and instructional process works within a PBL project, and it would continue to be a cycle to meet the needs of students.

Publically Presented Product to Relevant Audience

Another critical element of PBL is the presentation of products to an authentic audience. When students know they will present their work to an outside audience, urgency occurs as well as relevance. Students rise to the challenge and produce higher quality work than they would for just their teacher. The presentation can look different depending on context and resources available. Some public presentations are large exhibition nights, when school stakeholders and members of the community come to campus in the evening to see this work. Other public presentations involve publishing work on the Internet or presenting to a panel in the classroom. Technology, like Skype, can be also used to connect to make public presentations. The key is to make this audience as meaningful as possible. Teachers should consider these questions as they brainstorm a possible public audience:

- Who needs this information?
- Who has existing knowledge related to the project?
- Who will find the products and presentations valuable?
- How can the project make a difference in my community?

When addressing these questions, the public audience for a project can give meaningful feedback and praise to the students in a way that makes sense and values student work. In addition to having a public audience at the end of the project, it is even more powerful to bring that audience into the project, perhaps at the beginning or in the middle. Students can gain valuable feedback to improve their work along the way and also gain valuable information from experts. In addition, these public presentations

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can give students the opportunity to build the 21st-century skills of communication and assess speaking and listening standards.

Because students would be creating campaign videos to convince voters, Mr. Thompson decided to schedule the exhibition of their products on the night before the election. Community members and parents showed up for the video viewings and to hear student speeches the night before they went out to vote—a powerful and meaningful audience for the project.

PBL for Deeper Literacy Learning

ELA teachers can use this knowledge and advice to build rigorous projects that build not only literacy skills like reading, writing, speaking and listening but also the 21st-century skills of communication, creativity, critical thinking, and collaboration. Teachers who implement successful projects speak of higher engagement in the learning and the joy that returns to the classroom where there is a "buzz."

The focus of PBL is on deeper learning—learning that sticks. If you ask current teachers to reflect on their most memorable educational experiences they will, of course, mention a great teacher. However, they will also mention a meaningful project or unit where the learning was not only active and intriguing but also connected to the real world. PBL does no less. PBL creates a space where the learning sticks. Specifically, teachers can build PBL projects for deeper literacy learning, where students build their literacy skills in projects they will never forget.

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