











Authenticity



Public Product



Collaboration



Project Management



Reflection

The Framework for High Quality Project Based Learning (HQPBL) describes PBL in terms of the student experience. It describes six criteria, each of which must be at least minimally present in a project in order for it to be judged "high quality." The six criteria were chosen as a necessary starting point for providing students access to HQPBL because they are an essential baseline, but they are not all-encompassing.

Projects that are the most memorable, and that have the greatest impact on student learning and development, will be those with the highest quality implementation of each criterion. The case study that follows highlights the six criteria and is intended to provide readers with a real-world example of HQPBL.

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The global world of work is shifting toward what many are calling a gig or freelance economy—and even full-time roles are mirroring project-oriented engagements, complete with sprints and tightly-defined scopes.

It is perhaps unsurprising, then, that high quality Project Based Learning (HQPBL) is a sophisticated teaching methodology capable of transcending languages and cultures.

Redefining Traditional K-12 Education

In a number of locations across Chile, several organizations and schools have embraced PBL—and officials in the country's Ministry of Education are gearing up to implement capstone project experiences in the last two years of high school.

Yet while there are universal elements to PBL, challenges can arise when attempting to implement a previously untested approach in an academic environment. When considering PBL from a global perspective, educators need to keep in mind that cultural norms regularly play a role as well. When considering such a shift, educators and educational leaders in Chile have found that the following questions may help to unearth and mitigate any issues before they arise:

- ▶ How accustomed are teachers to functioning as coaches or mentors versus those who lecture in front of a class?
- ▶ What type(s) of training might be most helpful for educators both at the K-12 and postsecondary levels?
- ► Have students historically been encouraged to actively participate in their own educational journeys, or have they often followed the teacher as a leader?



- How can teachers and students effectively become acclimated to a different approach—one that encourages collaboration, autonomy, peer review, and (frequently) external outreach to the community?
- In what ways might school leaders and teachers guide parents toward understanding the advantages of embracing educational journeys that differ from their own?

Creating Equity Amid Economic Challenges

At Liceo Pablo Neruda, a high poverty school in northern Chile, a majority of the 700+ students are low-income students (77%) and many lack basic resources and face food insecurity. The school's principal, Jacqueline Retamales Espinoza, has become a regional champion for PBL. She described the importance of creating an engaging learning environment for students at Pablo Neruda—one where teachers and students share leadership and where learning is co-constructed.

Jeannette LaFors, a PBL consultant and advisor who works with schools in Chile, noted the dichotomy in the approaches.

"Today, there is plenty of rigor regarding expectations about what students are capable of knowing; Chile's content standards emphasize a lot of fact-based content—not unlike the 'mile-wide, inch-deep' standards many states in the U.S. adopted before the common core standards," LaFors said.

"In a number of areas throughout this country," she added, "PBL is changing that." Schools have been embracing this approach to learning in order to promote deeper understanding at a level that is intellectually challenging for each student. At Liceo Pablo Neruda, facilitating high quality PBL student experiences is the goal.

The school's initial PBL projects were organized into a single subject area for upperclassmen in practical career preparation courses such as nursing, mining, and electronics, among others. For instance, LaFors has observed a nursing class where students were working on projects in a "workshop"-style environment, where two to three adults circulated the room, supporting them as needed. Although this was a nursing class, students are connecting with other subject areas—including technology and language. While these projects are still centered upon students' mastery of discipline-specific standards, they also encourage them to integrate and apply what they are learning. In the process, students collaborate, are pushed intellectually, and motivated to accomplish tasks they might not have otherwise done in a single-subject setting.

STUDENTS SHARE: REFLECTING ON ENVIRONMENTAL STEWARDSHIP

High quality PBL isn't exclusive to Arica, however; it has been embraced by K-12 schools across the country.

It can be found in classrooms within Red de las Escuelas Líderes, a group of 100 schools serving students from high-need communities that have demonstrated academic success and are engaged in innovative practices.

Thanks to a conference hosted by
Fundación Chile, one school in
particular, Escuela Básica Talhuan,
has adapted an approach to PBL
first pioneered by an Expeditionary
Learning school in New York. The
small rural school's interdisciplinary
project involves students in grades 7
and 8, and incorporates history, natural
science, the arts, and technology within
a fascinating intersection of theoretical
and applied knowledge to solve realworld environmental issues. (Check
out this video of the project featuring
students of Escuela Básica Talhuan.)

What's more, PBL teachers at Pablo Neruda are also supporting the implementation of PBL at other schools in the region. At one of those schools, Manuel Rodriguez' 6th-grade students were eager to speak about the specific roles they had in their project (group leader, recorder, etc.).

An Authentic Local Advantage

When considering an effort of high ambition like implementing quality PBL, it might make sense to look skyward. This isn't just waxing poetic; one organization mobilized a number of schools—Liceo Pablo Neruda included—in a multidisciplinary effort that harnessed a natural power source.

It makes sense, as the region where the town of Arica and Liceo Pablo Neruda are situated is, in fact, home to some of the clearest skies in the world.

Its exceptional transparency and high levels of irradiation make the Atacama Desert an ideal testing ground for new solar technologies. Led by the Solar Energy Resource Center (SERC) Chile, a consortium of academic institutions have partnered with area schools and businesses on the new project, aptly named Ayllu Solar, as ayllu means "community" in two local languages. LaFors was brought in to work on the project, which emphasizes sustainable development for the region's urban and rural communities through the harvesting and implementation of solar energy, to support the training and implementation of Project Based Learning.



Curriculum development began earlier in 2017—and the approach took a Socratic turn. Fundación Chile (FCH) managed the process to develop and publish two interdisciplinary projects for grades 5 and 6, which aligned to national standards around two central questions:

GRADE 5 "How does the sun impact our identity?"

In fall 2017, FCH again managed the process of developing and publishing two additional interdisciplinary projects—this time for grades 8 and 9—which were aligned to national standards around two (higher level) central questions:

GRADE 9 • "How can we harness solar energy to more sustainably process our food?"









Students worked in teams to assemble (and later race) solar-powered vehicles constructed from scrap material, collaborating in person or online, and received guidance from adult mentors and experts

These prompts served as the springboard for students' projects; they deliberately were not prescriptive in nature, which allowed students to employ creativity and embrace a variety of interpretations. As a result, projects reflected students' perspectives and demonstrated a level of authenticity that would be difficult (if not impossible) to achieve with narrower specifications.

Bringing Projects to Life

One of the most exhilarating aspects of PBL lies in its ability to connect rigorous academics with the challenges of "real life." In the case of the project with Ayllu Solar, students from all participating schools had an opportunity to present their projects to the community in a public park in downtown Arica.

Passersby were able to explore teams' projects and talk with students one-on-one or in small groups, as each school had a stand to highlight their work. The students also were able to share their projects with the entire audience from the event's center stage. The event offered ample opportunities for students to both teach and learn from their peers.



A team of high school students showcases their Ayllu Solar PBL project in downtown Arica



Students share information about the benefits of solar power with area residents



The students' work was complemented by presentations from LaFors, Patricio Jascura Guerrero (FCH project manager), Rodrigo Palma (solar energy expert at La Universidad de Chile), Jacqueline Retamales Espinoza (school principal of Liceo Pablo Neruda), and a panel of teachers and peer facilitators. In Arica, showcasing PBL successfully encouraged stronger community ties between the education system and local citizens, and simultaneously bolstered students' public speaking skills.

Train the Trainer Efforts

Before embarking upon the implementation of PBL, training the educators who will ultimately be responsible for leading the shift and changing classroom dynamics is critical.



The initiative's overarching goals—empowering people with the knowledge, skills, and opportunities to improve their regional development—are well aligned with the methodology of PBL. In fact, the Framework for High Quality PBL reflects a belief that all students, irrespective of background or geographic location, must have access to this type of learning, as it enables them to master academic content and skills, develop skills necessary for future success, and build the personal agency needed to tackle life's and the world's challenges.

This is why Fundación Chile is leading the work of SERC, a consortium of universities, in training teachers on the implementation of Project Based Learning in their classrooms. Educators are introduced to the chronological cycles of project management:

- **Define** initiation of project, definition of the problem, and team agreement;
- ▶ Plan development of a shared work plan;
- ▶ **Do** focusing on execution and quality assurance;
- and Review evaluation of outcomes and lessons learned.

As of January 2018, five Liceo Pablo Neruda teachers have been trained and are serving as peer facilitators. While they implement PBL in their own classrooms, they also support other teachers new to PBL design and implementation. And additional teachers from Pablo Neruda could be called upon to support other teacher teams as the project continues to scale.

Onsite visits have been critical to aid in building a deeper understanding—but they haven't nor shouldn't necessarily be limited to educators. As such, in the first pilot phase of PBL project implementation, both students and teachers from five schools participated in field trips to Pablo Neruda in order to learn how solar energy works and to see it in action at the school's photovoltaic laboratory.



"When we as educators engage in teaching and learning that is authentic, relevant, rigorous and public, we are empowering young people to take charge of their learning,"

— Jeannette LaFors

Reflecting on Lessons Learned

A methodological approach was taken in looking back on all of the challenges, surprises, and outcomes surrounding the initial round of PBL projects. FCH supported the reflection and evaluation segment of the pilot phase by issuing surveys and soliciting feedback from key stakeholder groups. The foundation then incorporated findings from this phase into the design of the second cycle of PBL training and implementation. Additionally, FCH team members visited each of the five new schools in order to better understand their context and specific needs regarding the support of PBL and ensuring that student experiences were truly high quality.

It's worth noting that Ayllu Solar also currently supports four community-run solar projects related to tourism, sustainable shrimp and trout production, the wool industry, and agricultural transport logistics. While LaFors has yet to visit these project sites, she has encouraged teachers and schools to consider ways they might be able to connect with them in the future.

Exactly how will PBL impact students at Liceo Pablo Neruda? A number of positive outcomes have already been demonstrated in the short term, including increased student confidence, agency, curiosity, and inventiveness. Regarding the cumulative effects of these efforts, time will tell, as additional project cycles are planned to follow each semester, over a total of four years—involving more student cohorts in the process.



This case study was produced by Getting Smart as part of the High Quality Project Based Learning campaign. The goal of the campaign is to identify what high quality PBL student experiences look like and work to ensure all students have access to this type of learning. The campaign is supported by Project Management Institute Educational Foundation (PMIEF) and the William and Flora Hewlett Foundation and sponsored by the Buck Institute for Education.