It’s no secret that in today’s complex world, students face unparalleled demands as they prepare for college, careers, and active citizenship. However, those demands won’t be met without a fundamental shift from traditional, teacher-centered instruction toward more innovative, student-centered teaching and learning. For schools ready to make such a shift, project-based learning (PBL) offers a proven framework to help students be better equipped to tackle future challenges.

Project Based Teachers encourage active questioning, curiosity, and peer learning, create learning environments in which every student has a voice, and have a mastery of content but are also comfortable responding to students’ questions by saying, “I don’t know. Let’s find out together.”

In this book, Suzie Boss and John Larmer build on the framework for Gold Standard PBL originally presented in Setting the Standard for Project Based Learning and explore the seven practices integral to Project Based Teaching:

- Build the Culture
- Design and Plan
- Align to Standards
- Manage Activities
- Assess Student Learning
- Scaffold Student Learning
- Engage and Coach

For each practice, the authors present a wide range of practical strategies and include teachers’ reflections about and suggestions from their classroom experiences.

This book and a related series of free videos provide a detailed look at what’s happening in PBL classrooms from the perspective of the Project Based Teacher. Let’s find out together.
PROJECT BASED TEACHING

Acknowledgments .................................................................................................. ix
Foreword by Bob Lenz ....................................................................................... xi
Introduction ............................................................................................................1
1 Build the Culture .............................................................................................11
2 Design and Plan ..............................................................................................38
3 Align to Standards ...........................................................................................67
4 Manage Activities ............................................................................................80
5 Assess Student Learning ...............................................................................104
6 Scaffold Student Learning ..............................................................................127
7 Engage and Coach ........................................................................................157
8 Closing Reflections ........................................................................................176

Appendix:
  Project Based Teaching Rubric ........................................................................180
  Student Learning Guide ..................................................................................187
References .........................................................................................................192
Index ..................................................................................................................197
About the Authors ...............................................................................................206

ADVANCE UNCORRECTED COPY - NOT FOR DISTRIBUTION
Foreword

by Bob Lenz
Executive Director, Buck Institute for Education

The world has changed dramatically over the last generation—even over the last 10 years. Our lives have become far more connected through technology, a global economy, and social media. Our awareness of the complexity of the challenges we face as human beings—from climate change to issues of conflict and food distribution—has grown substantially. The world of work is changing rapidly, too. More and more tasks are being automated—from manufacturing to driving to writing data-based reports. Furthermore, collaboration has become the norm; most people in Information Age companies work in and across teams. Finally, it has become a project-based world. Forty percent of people in the United States work as contract employees, moving from one client’s project to another. This is expected to grow to 60 percent by 2025. Almost all work, even in traditional companies, is organized by projects. Given the dramatic changes in the world, one would think that schools have also changed. Yet, for the most part, we educate our youth the same way we did over 100 years ago.

Over the last three years, I have had the opportunity to ask people all over the world—young and old, educators and business leaders, community leaders and parents—this question: “Given the changes in the world, what skills and dispositions are needed for success?” Amazingly, no matter where I asked the question, among all
groups, I found consensus on the answer. In addition to academic content knowledge and skills, students need success skills such as collaboration, communication (oral, written, and visual), critical thinking and problem solving, project management and self-management, creativity and innovation, and a sense of empowerment to tackle the challenges of their lives and our world. The students experiencing the kind of Project Based Learning described in this book are gaining these skills and dispositions.

The Need for Project Based Teaching

Though we all agree that the world has changed, we also know that schools have not. With this growing awareness, we have started to see some shifts around the United States and globally. We see schools and districts working toward more student-centered approaches that include inquiry learning, personalized learning, performance-based assessments, and a huge surge of interest in and implementation of Project Based Learning. To meet the demand for examples of projects and PBL professional development for teachers, the field has responded.

Examples of high-quality projects can be found in many places, and due to the excellent work of my colleagues at the Buck Institute for Education and other education organizations focused on deeper learning, teachers can access materials, resources, and workshops on how to design high-quality projects. The Essential Project Design Elements in the Buck Institute’s model for Gold Standard PBL, first described in Setting the Standard for Project Based Learning (Larmer, Mergendoller, & Boss, 2015), have been well received and adopted by educators across the country and around the world. The Project Based Teaching Practices also introduced in that book have equally resonated with the field; however, more is needed about how to teach in a PBL classroom.

Educators need detailed descriptions, strategies, and video so they can learn about the teacher moves that lead to effective implementation of PBL. Project Based Teaching, plus a series of videos released by the Buck Institute for Education (available at www.bie.
org), answers this call by highlighting the work of seven diverse and successful PBL teachers. Several more teachers are heard from in this book, many of whom are in the Buck Institute’s National Faculty. These teachers are not necessarily the “rock stars” you might see in popular movies; they are regular folks who are nonetheless inspirational for their classroom skills, depth of knowledge, and passion for doing a good job for all kids.

How School and District Leaders Create the Conditions for Project Based Teaching

Whereas Project Based Teaching focuses on the nitty-gritty of how teachers facilitate high-quality learning experiences for students, the work of school and district leaders to put the conditions in place for teachers to do great projects with kids cannot be overlooked. In the schools where we see excellent implementation of Project Based Learning, we also find

- **A clear, coherent, and compelling vision for new goals for education and new ways of teaching and learning.** Leaders work with staff and community stakeholders to establish a vision that includes a graduate profile with 21st century success skills and explicitly calls for Project Based Learning experiences as the method for reaching that goal.

- **A culture of learning, innovation, and inquiry for students, teachers, and leaders.** Leaders make it safe for teachers to innovate and take risks. This is reflected in the classroom practice of PBL. The school poses questions about its work and follows an inquiry process to answer them, much like students do in a project.

- **Redesigned and reimagined school structures.** For example, the master schedule is modified to allow for longer, more flexible blocks of instructional time; teachers are provided with more individual and collaborative planning and learning time; middle and high schools organize students into cohort groups where teams of teachers share the same students.
• **Deep and consistent capacity building for teachers and the leadership team.** The teachers we learn from in *Project Based Teaching* have all had professional development workshops, ongoing instructional coaching, and collaborative planning opportunities to hone their craft.

• **A commitment to continuous improvement.** One learns how to facilitate high-quality Project Based Learning by facilitating Project Based Learning. I am sure all of the teachers in this book would tell you that their strategies and effectiveness have improved dramatically from their first PBL unit. By employing the Essential Project Design Element of critique and revision, like students do in a project, they continue to improve their practice of PBL.

**How This Book Reflects the Framework for High-Quality PBL**

In 2018, a steering committee of 27 educators and thought leaders with a stake in Project Based Learning, plus representatives of organizations that prominently feature PBL in their programs, finalized a Framework for High-Quality PBL that describes what high-quality Project Based Learning looks like in terms of the student experience. The steering committee also included international representation from Finland, Chile, South Korea, and China. The purpose of the Framework is to create a shared agreement (which did not previously exist) about what high-quality PBL is to guide the work of teachers, schools, academics, education leaders, policymakers, journalists, and curriculum and service providers.

The effort was facilitated by the Buck Institute for Education, partnered with Getting Smart and with support from the Project Management Institute Educational Foundation and the William and Flora Hewlett Foundation. The development of the Framework took 12 months and was a highly collaborative and iterative process, with substantial input from the public, teachers, and other organizations.
Here are the six criteria in the Framework for High-Quality PBL that must be present to some extent in order for a project to be judged as high quality. (Visit https://hqpbl.org for more details, including the research behind these six criteria.)

**Intellectual Challenge and Accomplishment**

*Students learn deeply, think critically, and strive for excellence.* To what extent do students

- Investigate challenging problems, questions, and issues over an extended period of time?
- Focus on concepts, knowledge, and skills central to subject areas and intellectual disciplines?
- Experience research-based instruction and support as needed for learning and project success?
- Commit themselves to completing work of the highest quality?

**Authenticity**

*Students work on projects that are meaningful and relevant to their culture, their lives, and their future.* To what extent do students

- Engage in work that connects to the world beyond school and to their personal interests and concerns?
- Use the tools, techniques, and/or digital technologies employed in the world beyond school?
- Make choices regarding project topics, activities, and/or products?

**Public Product**

*Students’ work is publicly displayed, discussed, and critiqued.* To what extent do students

- Exhibit their work and describe their learning to peers and people beyond the classroom?
• Receive feedback and/or engage in dialogue with their audiences?

Collaboration

_Students collaborate with other students in person or online and/or receive guidance from adult mentors and experts._

To what extent do students

• Work in teams to complete complex tasks?
• Learn to become effective team members and leaders?
• Learn how to work with adult mentors, experts, community members, businesses, and organizations?

Project Management

_Students use a project management process that enables them to proceed effectively from project initiation to completion._

To what extent do students

• Manage themselves and their teams efficiently and effectively throughout a multistep project?
• Learn to use project management processes, tools, and strategies?
• Use the perspectives and processes of design thinking, as appropriate?

Reflection

_Students reflect on their work and their learning throughout the project._

To what extent do students

• Learn to assess and suggest improvements in their own and other students’ work?
• Reflect on, write about, and discuss the academic content, concepts, and success skills they are learning?
• Use reflection as a tool to increase their own personal agency?
When the Framework for High-Quality Project Based Learning was announced, educators and organizations across the United States and around the world signed on to register their commitment to it, joining an effort that continues to gather momentum today. Everyone who commits might have different ways to turn the vision described by the Framework into reality for students. In the case of the Buck Institute, it’s our model for Gold Standard PBL, as described in Setting the Standard for Project Based Learning and in this book. The teaching practices and project designs showcased in Project Based Teaching will result in “yes” answers to all of the questions posed by the six criteria.

The vision of the Buck Institute for Education is that all students, no matter where they are from or what their background, have the opportunity to experience high-quality Project Based Learning. We believe that, when done well, Project Based Learning serves as a tool for educational equity by empowering students to learn the academic content and skills plus the success skills they will need to meet the challenges in their lives and in our world. We hope that Project Based Teaching and the accompanying video series help build the capacity of teachers everywhere and at all educational levels to design and facilitate great projects for their students—including those furthest from opportunity.

Onward with love and purpose,

Bob Lenz
Executive Director
Buck Institute for Education
February 2018
Introduction

Every aspect of school change depends on highly skilled teachers for its success.
—Linda Darling-Hammond

There’s no question that Project Based Learning (PBL) is gaining traction as a key instructional strategy, both across the United States and around the globe. Reasons for introducing PBL are numerous and can differ from one school system to the next. Across a wide range of contexts, however, there’s growing recognition that today’s complex world puts new demands on students as they prepare for college, careers, and active citizenship. Those demands won’t be met without a fundamental shift away from traditional, teacher-centered instruction and toward more innovative, student-centered teaching and learning.

For schools ready to make that shift, PBL offers a proven framework to help students be better equipped to tackle future challenges. Through academically rigorous projects, students acquire deep content knowledge while also mastering 21st century success skills: knowing how to think critically, analyze information for reliability, collaborate with diverse colleagues, and solve problems creatively. In the process of engaging with PBL, students learn to ask good questions, be resourceful, manage their time, meet authentic deadlines, and persist through challenges. When done well, PBL fosters self-management and self-directed learning. These are precisely the competencies that will enable students to thrive in the future they will help shape.
Along with new demands on students come fresh challenges for educators. Relatively few teachers had the chance to experience PBL as students when they were younger, and teacher preparation programs are only just starting to include PBL methods. Without prior experience or professional training, many teachers face a steep learning curve. They may wonder if introducing PBL means starting from scratch with lesson planning, assessment, and daily classroom routines. They worry whether they will be able to cover the required curriculum if they make time for PBL. Newcomers to PBL often ask, “What changes with PBL? What stays the same in my classroom? And how do I know if I’m doing it right?”

The Buck Institute for Education (BIE) has helped thousands of teachers gain confidence with PBL through face-to-face workshops, and online resources and books have reached countless more educators around the globe. *Setting the Standard for Project Based Learning* (Larmer, Mergendoller, & Boss, 2015) was written in response to the groundswell of interest in PBL. The goal with that book was to help teachers and school leaders design and implement PBL well, regardless of their location or school context. Students from every ZIP code and background deserve to benefit from high-quality PBL experiences.

*Setting the Standard for Project Based Learning* introduced a framework for Gold Standard PBL. Informed by research and extensive input from teachers and school leaders, the Gold Standard sets a high bar when it comes to academic rigor. That’s important, because poorly executed PBL can be a waste of valuable learning time. We’ve seen too many so-called projects that focus on fun and hands-on activities but fail to address significant learning goals. When PBL is done well, on the other hand, the stage is set for a deep dive into meaningful academic content. Project Based Learning involves sustained inquiry into challenging questions or problems. Students need to not only learn content but also be able to apply it. By definition, Gold Standard PBL is “main course” learning—not dessert.

To accomplish consistently deep and meaningful learning, Gold Standard PBL calls for seven Essential Project Design Elements (see Figure 0.1):
• Challenging problem or question
• Sustained inquiry
• Authenticity
• Student voice and choice
• Reflection
• Critique and revision
• Public product

Figure 0.1  Essential Project Design Elements for Gold Standard PBL

Emphasizing these elements from start to finish in a project helps ensure that the learning experience will be worth the investment by students and teachers alike. These elements set the stage for project success whether you use PBL all the time or only occasionally during the school year.

Setting the Standard for Project Based Learning also introduced a set of seven Project Based Teaching Practices but did not explore them in depth. Feedback from teachers, school leaders, and instructional
coaches indicates a desire for more. Educators shifting to PBL want more examples of high-quality projects in action. They want to see not just final, polished results of student learning but more of the day-to-day instructional practices that teachers use along the way to support and engage all students in this type of learning. They want to hear other teachers’ strategies for making enough time and space for PBL within their curriculum. This book and a related series of free videos provide a much more detailed look at what’s happening in PBL classrooms from the perspective of the Project Based Teacher (see www.bie.org).

Project Based Teaching Practices

For students to succeed with PBL, teachers may have to make major shifts in instructional practice. This is especially true for those who have taught in traditional settings, relying primarily on direct instruction, textbooks, and tests. Instead of being the all-knowing expert who transmits knowledge, the PBL teacher is a well-informed coach, facilitator of learning, and guide through the inquiry process. Rather than holding all the answers, Project Based Teachers encourage active questioning, curiosity, and peer learning. They create learning environments in which every student has a voice. They have a mastery of content but are also comfortable responding to students’ questions by saying, “I don’t know. Let’s find out together.” (See Figure 0.2.)

The shift to Project Based Teaching often happens gradually as teachers identify and adopt strategies that help their students succeed. Unless you are teaching in a wall-to-wall PBL school, where students are consistently learning through projects in every content area, you will likely alternate between PBL and more traditional instruction throughout the school year. For example, many teachers set a realistic goal of doing at least two projects per semester.

Personalized learning, an increasingly popular trend in education, is compatible with and shares many student-centered instructional practices with PBL. Although PBL acknowledges the importance of student voice and choice, personalized learning puts even more of a premium on students’ individual interests, skills, and developmental
needs (Jobs for the Future & the Council of Chief State School Officers, 2015).

Schools that focus on personalized learning also tend to emphasize a competency-based progression toward mastery of content and skills. They may make use of individual learner profiles that describe each student’s strengths and areas for growth, or they may award badges for mastery of specific competencies. In addition, students may have time built into their regular class schedules to pursue individual interests through passion projects or “Genius Hour” experiences. To encourage personalization, schools may use a blended learning approach—combining face-to-face instruction with online learning—to give students more control over when, where, and how they learn. Some schools are also exploring a combination of personalized learning and PBL—with students pursuing individual interests for part of the day and taking part in more collaborative, standards-based projects at other times.

**Figure 0.2** Project Based Teaching Practices for Gold Standard PBL
Regardless of whether projects are done by teams or individually, if the projects are of high quality—with teachers paying attention to Project Based Teaching Practices—all of these PBL experiences have the potential to be high points of the school year for you and your students.

In the chapters ahead, you will gain insights into each of the seven Project Based Teaching Practices that support student success. For each practice, you will discover a wide range of practical strategies and hear teachers reflect about their classroom experiences. Just as student voice is essential to high-quality PBL, teacher choice is embedded in effective Project Based Teaching.

**Build the Culture:** Classroom culture conveys an ethic of care, an emphasis on excellence, and a sense of shared intention. The right culture builds students’ independence, fosters collaboration, encourages a growth mindset, supports risk taking, encourages high-quality work, and builds inclusiveness and equity. In many ways, culture is the fuel for student voice and choice, sustained inquiry, and persistence. Positive culture doesn’t get built with a one-day team builder. It’s an ongoing effort to create an inclusive community of learners.

**Design and Plan:** Intentional design of the learning experience sets the stage for students and teachers to capitalize on the full potential of PBL. Essential Project Design Elements provide a blueprint for the project, including planning for both formative and summative assessment. Teacher decisions at the design stage include curating resources and, potentially, connecting with experts or community partners. Project Based Learning plans allow room for student voice and choice but keep the project from becoming unwieldy.

**Align to Standards:** By aligning projects to meaningful learning goals, teachers ensure that PBL is academically rigorous and has an emphasis on priority standards and higher-order thinking. What’s more, students understand why they’re learning what they’re learning and how PBL relates to the world beyond the classroom.

**Manage Activities:** A well-managed PBL experience enables students to get to deep learning and develop the teamwork and self-management skills that will serve them in life. Project management
strategies focus on productivity and efficiency, but PBL is not about following a recipe. A well-managed project allows for sometimes “messy” learning.

**Assess Student Learning:** Assessment ensures that students work toward mastery. It’s not about “gotchas” or sorting but about growth. PBL requires a balance of formative and summative assessment, including both team and individual feedback. Feedback comes from multiple sources, including peers, experts, and audiences along with the teacher. Students have time to improve and refine their work based on comprehensive feedback.

**Scaffold Student Learning:** Scaffolding creates conditions so every student can succeed with the project and master learning goals. In an equitable classroom, students’ prior learning experiences, language fluency, or reading levels are not barriers to success.

**Engage and Coach:** Engaging and coaching strategies bring out the best in students. Coaching strategies use questioning, modeling, and reflection to build intrinsic motivation and help students achieve their learning goals. A caring, trusting relationship between teacher and students is the foundation for successful PBL.

The closing chapter offers advice and reflections from teachers who have made the shift to PBL. Their experiences show us that PBL gets better with practice. Becoming a skilled Project Based Teacher doesn’t happen with one project; it’s an ongoing process of professional learning, supported by effective school leaders, instructional coaches, and teaching colleagues. Although many day-to-day classroom practices do change with a shift to PBL, teachers are often relieved to discover that they can make effective use of tried-and-true resources and strategies within the context of PBL.

What doesn’t change with the introduction of PBL is the critical importance of a caring teacher in the lives of students. Indeed, when teachers begin to implement PBL, they often say that they get to know their students better as a result. A common refrain among teachers who have made the shift to PBL is “Doing projects with my students reminds me why I went into teaching in the first place.”
Meet the Teachers

Project Based Teachers from across the United States have opened their classrooms for this book and for the companion series of videos. They teach across grade levels and content areas, and they work in schools that vary widely when it comes to student demographics and socioeconomics. You will hear them describe how they use specific Project Based Teaching Practices to support student learning. Unless otherwise indicated, their stories are based on interviews or personal correspondence with the authors or video crew.

Teachers whose stories are woven throughout this book include a math teacher from an urban high school, an elementary teacher whose students include a number of English language learners, a suburban middle school science teacher who wants her students to become well-informed citizens, a chemistry teacher in a high school where a high percentage of students have special needs, and many more. Some teachers work with students who will be the first in their families to attend college. Advocates for educational equity, these teachers see PBL as the best way to prepare all learners for the future. You will hear, too, from instructional coaches who play important supporting roles in helping Project Based Teachers build their confidence with new strategies.

Across different contexts, these educators share a belief that their students will rise to the challenges of PBL. High expectations for all are an integral part of the PBL culture. As one high school humanities teacher regularly tells her students, “I believe in you.”

Special Features

This book also includes special features to deepen your understanding of Project Based Teaching Practices and strategies to help PBL take hold in your community:

- **Gold Standard Indicators:** Each chapter describes what Gold Standard Project Based Teaching Practices should look like in action, with indicators from the Buck Institute for
Education’s Project Based Teaching Rubric (included in full in the Appendix).

- **Try This:** Watch for these descriptions of activities to support PBL in your context. Try these ideas with your students and colleagues and then reflect on the results.

- **Coaches’ Notebook:** How can instructional coaches and teacher leaders support PBL? Veteran coaches offer suggestions to improve practice and build teachers’ confidence with Project Based Teaching.

- **On Your PBL Bookshelf:** Recommended readings are offered to deepen your understanding of each Project Based Teaching Practice.

### Appendix

The Appendix includes two more resources that will help you continue to develop your capacity as a Project Based Teacher.

- **Project Based Teaching Rubric:** The complete rubric for Project Based Teaching Practices is included for reference. A continuum of criteria is included for each of the seven practices for the Beginning PBL Teacher, the Developing PBL Teacher, and the Gold Standard PBL Teacher. Intended as a tool for professional growth, the rubric is a useful tool for self-reflection, in professional development, or as part of collegial conversations about PBL.

- **Sample of Completed Student Learning Guide:** Teachers make many design decisions to set the stage for Gold Standard PBL. To help readers envision the planning involved in an academically rigorous project, the Appendix includes a completed student learning guide for one of the project examples discussed in this book (Revolutions on Trial). To download a blank student learning guide for use in your own project planning, visit www.bie.org and search “Student Learning Guide.”
A positive classroom culture creates an inclusive community of learners for PBL.

When Telannia Norfar’s high school students arrive for pre-calculus class, they know exactly what to expect. Projected on the screen at the front of the room are clear instructions for the day’s Success Starter. This three-minute individual activity warms up their thinking for the learning and project work ahead.

A typical Success Starter might ask students to solve an equation and calculate future college costs. For example:

Using the formula to find the cost for Alia to attend college, how much will it cost when she is a sophomore? Remember that Alia is 12 right now.

\[ A(t) = 17907(1.04)^x \]

Options:
A $25,487.20
B $24,507.00
C $23,564.40
D $22,658.10

This is not make-believe. These students from Northwest Classen High School in Oklahoma City, Oklahoma, are in the early days of a project in which they will apply their understanding of exponential,
logarithmic, and rational functions to help real-life clients develop financial plans. They have already met their seven clients whose financial needs include saving for college (in the case of Alia’s family), paying for a home mortgage, planning for retirement, or a combination of those factors. Students have started to tackle their driving question: *How can we design financial plans to help our clients meet their needs?*

A companion video about building the culture for PBL can be found at www.bie.org.

As soon as students complete the warm-up, Norfar outlines the learning objective for the day: “I can create an equation in one variable that represents a financial model and use it to solve a situation.”

She asks, “What does this objective mean? What would it mean to know this? How would it help us answer our driving question?” and then instructs students to turn and talk about those questions with their three tablemates.

Students confer for a quick discussion, connecting the new concept to their project goals. Then they regroup with the whole class to hear the teacher introduce a new problem about exponential functions. Norfar gives her students just enough information to get started. They can choose to work on the problem on their own, in collaboration with classmates, or with the support of resources the teacher has made available.

“You might not reach an answer today. You might not reach an answer tomorrow. Struggle is OK,” Norfar reminds students as she begins to circulate and observe. Students know that, by the third day, they will be expected to present their understanding and problem-solving strategy to the class.

Conversation starts to build as students discuss the problem and compare strategies. Norfar pauses at the desk of a student who is sitting silent. The girl looks up and confides, “Mrs. Norfar, I’m horrible at math.”
“You have a short memory!” she replies with a kind smile. “You say this every time we tackle a problem. Remember last time when you struggled and then overcame your confusion? Remember our norms that we wrote together? One of them was ‘We all have a growth mindset.’ And remember, I’m here for you.”

Why Classroom Culture Matters for PBL

Classroom culture is multifaceted and challenging to define, but it is essential to get right if you want all students to thrive with PBL. Across an entire school, culture encompasses the shared values, beliefs, perceptions, rules (both written and unwritten), and relationships that govern how the institution functions (Çakiroğlu, Akkan, & Güven, 2012; Kane et al., 2016). School culture is also reinforced by norms, expectations, and traditions, including everything from dress codes to discipline systems to celebrations of achievement. Researchers know that students learn best when they feel safe (Scott & Marzano, 2014), and a strong culture encourages effort, supports collaboration, amplifies motivation, and focuses attention on what matters for learning (Deal & Peterson, 2009). A culture that fosters high achievement ensures that the conditions for learning are ever-present and conveys “a shared belief that we are part of something special and great” (Fisher, Frey, & Pumpian, 2012, pp. 6–7).

Indeed, culture is so intertwined with learning that it has been called the hidden curriculum (Jerald, 2006). Sean Slade (2014), an expert on serving the needs of the whole child, argues that culture is shaped by everything that students see, hear, feel, and interact with at school. He elaborates:

Within a couple of minutes of walking into a school or a classroom, you can tell, define, almost taste the culture that permeates that space. Is it an open, sharing environment? Or is it a rigid, discipline-defined playing field? Is it safe and welcoming, or intimidating and confronting? Does it welcome all voices, or does it make you want to shrink? Is it waiting for instruction and leadership, or is it self-directed with common purpose? (para. 2)
Classroom culture takes on particular significance in PBL. When the goal is to foster inquiry, risk taking, persistence, and self-directed learning, culture is too important to leave to chance. Building the right culture for PBL requires ongoing effort and attention by both teachers and students. Instead of being hidden, a PBL culture needs to be openly constructed, reinforced, and celebrated.

★ Gold Standard Project Based Teaching Indicators: Build the Culture

When a positive culture for learning is established, you should see evidence in how students interact with you and one another. Indicators for building the culture include the following:

- Norms to guide the classroom are cocrafted with and self-monitored by students.
- Student voice and choice is regularly leveraged and ongoing, including identification of real-world issues and problems students want to address in projects.
- Students usually know what they need to do with minimal direction from the teacher.
- Students work collaboratively in healthy, high-functioning teams, much like an authentic work environment; the teacher rarely needs to be involved in managing teams.
- Students understand there is no single “right answer” or preferred way to do the project and that it is OK to take risks, make mistakes, and learn from them.
- The values of critique and revision, persistence, rigorous thinking, and pride in doing high-quality work are shared, and students hold one another accountable to them.

See the Appendix for the complete Project Based Teaching Rubric.
How Teachers (and Students) Shape Culture

Teachers shape culture in both obvious and less noticeable ways. In Norfar’s classroom, for example, culture is reflected by the daily Success Starters and other routines, belief in a growth mindset, and even the physical arrangement of the room with students seated in tables of four to foster collaboration. These elements contribute to a welcoming yet academically challenging culture that is built on a foundation of caring relationships.

“My students know I love them,” Norfar says, and she regularly underscores that message with her words, gestures, and high expectations. She also doesn’t hesitate to mix in some humor.

The teacher’s role in building a positive culture is akin to “developing the sorts of attitudes, beliefs, and practices that would characterize a really good neighborhood,” according to educational expert Carol Ann Tomlinson (2017, p. 43). Signposts of this kind of classroom “neighborhood” include mutual respect, a sense of safety, an expectation of growth, and a sense that “everyone feels welcomed and contributes to everyone else feeling welcomed” (p. 43).

To find evidence of culture in the classroom, PBL veteran Feroze Munshi suggests looking at your learning environment as if you were an anthropologist. He encourages teachers to consider, “What are the shared attitudes, values, goals, and practices [in your classroom]? What language is used? What are the practices and routines? What artifacts do you see?” All of these components contribute to the culture of learning.

Four Strategies for Building PBL Culture

Let’s take a closer look at four culture builders that are especially important for PBL. They involve focusing deliberately on beliefs and values, shared norms, the physical environment, and protocols and routines. For each, a wide range of strategies and classroom traditions will help you and your students build and reinforce a positive PBL culture.
Remember, too, that the right culture for PBL is likely to feel unfamiliar for some students, especially if they have only experienced traditional instruction or top-down discipline in the past. As you introduce more democratic strategies, such as cocreating class norms, talk with students about the purpose and benefits of these activities. Reinforce the message that everyone in the learning community plays an important role in creating and maintaining culture.

Although you will likely put more energy into building culture early in the school year, this needs to be an ongoing effort. Culture building isn’t something that happens with just one project, slogan, or team-building activity. Throughout the year, from one project to the next, you’ll want to continue reinforcing the values, habits, and routines that contribute to a learning environment in which all students can succeed with PBL.

Ray Ahmed, a high school chemistry teacher at a culturally diverse school in Brooklyn, New York, acknowledges that it takes effort to build and reinforce the right classroom culture for students to succeed with PBL: “We’re trying to teach students to be respectful, listen to each other, work together, and have an academic mindset. It’s harder in September but so much easier in February when kids are holding each other accountable to the norms.”

Beliefs and Values: Sharing What Matters

At the end of every project, Larkspur, California, middle school teacher Rebecca Newburn asks her students for feedback. She reminds them to be kind, specific, and helpful, reflecting their class norms. “I ask them, ‘What was helpful? What was not? How was the pacing? Was there too much hands-on or not enough? What helped you learn the most?’”

Once she receives their surveys, she follows up with emails to individual students. “I might say, ‘I really like your feedback about the pacing of the project. Can you tell me more? What would have been better?’”

Students are often surprised by her response. “They’ll say, ‘Oh, my gosh, you actually listened!’ I’m modeling that listening to their
feedback adds to the culture. I’m showing them that they really do have a voice.” Being transparent about what you value helps students see you as a partner in learning and a supporter in their PBL endeavors. Teachers share their beliefs and values with students directly and through action.

Math teacher Telannia Norfar, for example, reminds students that she believes they all can succeed—even if they have not been successful in math in the past. One of her refrains is “Everybody here is brilliant,” and she talks about expectations every day, all year long. She also connects learning goals to students’ life goals. A project about financial planning, for example, is readily applicable for college-bound students.

Many of Norfar’s students will be the first in their families to attend college. “That means there’s no one in their family who knows how it all works,” she says. “Even though we’re helping another family with financial planning for the project, I am also helping my students understand college planning.”

Similarly, humanities teacher Erin Brandvold looks for opportunities to “just be super-positive.” For example, if a student asks her which reading choice is the easiest, she will reply, “It’s the one you’re most interested in. That’s what will keep you going.”

Another belief shared by most Project Based Teachers is that students deserve to know the purpose for what they are learning. PBL makes that “why” obvious by connecting academic concepts to real-world contexts. Well-designed projects naturally answer the perennial student question “When will we ever need to know this?” Making sure students have an authentic audience for their efforts is another way that teachers bring meaning to learning experiences.

For chemistry teacher Ray Ahmed, the goal with PBL “is to strategically help students learn core academic content around things they care about.” At the same time, he cares about meeting students’ social and emotional needs. “That’s where projects come in nicely,” he says. “You can address all the aspects of social and emotional and intellectual learning through a project that engages the students.”

Although these veteran teachers want PBL to be engaging for students, they also recognize that this approach to learning is not
easy. In words and actions, Project Based Teachers convey their belief that students can rise to the challenge and produce high-quality work to meet demanding goals.

Norfar’s students have been known to say, “Why don’t you just tell us the answer?” Her response reflects her beliefs and values: “I honor what students say. I listen if they need to vent. But then I tell them, ‘You need to grow. If you only learn by someone telling you, you’re going to have a hard time when you have to figure things out for yourself. I’ll scaffold it for you so you can succeed. You may have to wrestle. There’s nothing wrong with being stuck. Just breathe, and then approach it in a different way.’”

In her comments, we can hear the core values and beliefs that are shared by effective PBL teachers—and that are critical to building a positive culture for learning.

**Shared Norms: Creating a Community of Project Based Learners**

Visit a PBL classroom and you are likely to see banners, posters, or slogans that convey class norms. These typically sound different from rules, which tend to be teacher-generated and are often heavy on “dos and don’ts” (e.g., “Get to class on time”; “Don’t use profanity”). Rules are about enforcement and control. Norms, on the other hand, are shared agreements about how classmates and teachers treat one another and what they value as a community of learners. In PBL, shared norms support a learning culture that is inclusive, respectful, and fair (see Figure 1.1).

Coming to a consensus about norms builds a strong foundation for PBL. Taking part in norm setting tells students that they have a voice in how the classroom operates. When they work to uphold those norms, they hold everyone accountable, including themselves, their peers, and the teacher. This process shifts the traditional power dynamic and fosters a more democratic classroom.

Students bring a wide range of cultural norms, expectations, and practices from their home environments. Educators, too, bring their own assumptions and biases. The goal of creating shared norms is
Build the Culture   19

Figure 1.1  Culture Builders

Let’s take a look at the norms adopted by Norfar’s high school math classes in Figure 1.2 (p. 21), which reinforce a culture of “fair and engaging learning.” You’ll notice that these statements are worded clearly and positively for both teacher (“Help students understand”) and students (“Advocate for yourself”), with the stated goal of creating a fair and engaging learning environment. Everyone had a voice in creating the norms, and everyone is accountable for enforcing them.

Teachers go about establishing norms in different ways, depending on students’ age and developmental level, their previous experience with norms, and the broader school culture. Practical
considerations also come into play. Norfar, for example, teaches several preps each day. Early in the school year, she introduces a mini-project that poses this driving question: \textit{How can we create a fair and engaging learning environment for math?} Students in every class period contribute to the brainstorming about shared norms and vote to reach a consensus. Norfar then synthesizes that input to arrive at one set of norms for all classes (as captured in Figure 1.2), including expectations for students and the teacher.

Visit Sherry Griesinger’s classroom in Novi, Michigan, and you’ll see a poster of norms that were obviously generated by her community of 2nd graders. They include agreements such as

- Keep everyone happy.
- Make smart choices.
- Take care of our stuff and each other.
- Follow directions quickly.

The students and teacher then use hand signals and simple gestures to reinforce their norms. For example, a tap at the temple might mean “I’m making a smart choice.”

Even the youngest learners are ready to establish norms together. With her 5-year-old transitional kindergarten students, teacher Sara Lev starts the school year by asking, “How should we treat each other? What are our hopes for the year?” Students learn immediately that their voice matters. “It’s so different than if I came in and laid down the rules,” Lev says. “I’m constantly asking students what they think.”

Ray Ahmed starts building a positive classroom culture with his chemistry students right off the bat: “The first days are all about building culture and managing activities that students do in class. If you pick the right activity, you bring to life the norms you’re trying to set.” From day one, he has students working on learning activities in small groups. He sits in on their discussions in the role of coach and conferences with students individually about their progress. He introduces protocols such as gallery walks for peer critique. “Right away, there’s a lot of talking, thinking, and working together. I’m doing a lot
of reinforcing of positive behaviors. That's different than saying you can't do this or that.”

**Figure 1.2  Shared Norms**

**Teacher and Student Norms**

Below are the norms for the teacher(s) and students. Norms are what we agree to do as a class to make this a fair and engaging learning environment. We will check in on the norms each week.

<table>
<thead>
<tr>
<th>Teacher Norms</th>
<th>Student Norms</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Teach in different ways.</td>
<td>1. Have a growth mindset.</td>
</tr>
<tr>
<td>2. Call students by their names.</td>
<td>a. Believe you can improve.</td>
</tr>
<tr>
<td>3. Care about students’ feelings.</td>
<td>b. Fail forward.</td>
</tr>
<tr>
<td>a. Understand their situation</td>
<td>c. Keep trying.</td>
</tr>
<tr>
<td>4. Have a good attitude.</td>
<td>d. Speak positively about your abilities to learn.</td>
</tr>
<tr>
<td>a. Stay calm.</td>
<td>2. Call classmates by their names.</td>
</tr>
<tr>
<td>b. Use kind words.</td>
<td>3. Be responsible for your work.</td>
</tr>
<tr>
<td>c. Have patience.</td>
<td>a. Have materials ready.</td>
</tr>
<tr>
<td>d. Greet students and say good-bye.</td>
<td>b. Advocate for yourself.</td>
</tr>
<tr>
<td>5. Help students understand.</td>
<td>c. Be a professional.</td>
</tr>
<tr>
<td>a. Work at a reasonable pace.</td>
<td>d. Meet deadlines.</td>
</tr>
<tr>
<td>b. Explain clearly.</td>
<td>e. Participate.</td>
</tr>
<tr>
<td>c. Support different learning styles.</td>
<td>f. Be on time to class.</td>
</tr>
<tr>
<td>d. Expect the best.</td>
<td>4. Listen…</td>
</tr>
<tr>
<td>e. Re-explain if necessary.</td>
<td>a. to the teacher.</td>
</tr>
<tr>
<td>6. Attend school the majority of the time.</td>
<td>b. to your classmates.</td>
</tr>
<tr>
<td>7. Be respectful.</td>
<td>c. to guests.</td>
</tr>
<tr>
<td>a. Give everyone what they need.</td>
<td>d. to the directions.</td>
</tr>
<tr>
<td>b. Use proper language.</td>
<td>5. Attend school the majority of the time.</td>
</tr>
<tr>
<td>c. Allow space if needed.</td>
<td>6. Be a good team player.</td>
</tr>
<tr>
<td>d. Use supportive words when explaining.</td>
<td>a. Provide good, helpful feedback.</td>
</tr>
<tr>
<td>e. Call by your name.</td>
<td>b. Stay calm.</td>
</tr>
<tr>
<td>8. Have a growth mindset.</td>
<td>c. Encourage others.</td>
</tr>
<tr>
<td></td>
<td>d. Stay on topic.</td>
</tr>
<tr>
<td></td>
<td>e. Be considerate.</td>
</tr>
<tr>
<td></td>
<td>f. Use proper language.</td>
</tr>
<tr>
<td></td>
<td>g. Communicate clearly to students and teacher(s).</td>
</tr>
</tbody>
</table>

Teacher and students commit to these agreements in Telannia Norfar’s math classes.
Some teachers build their class norms by building on a foundation of schoolwide agreements. While not every school has established schoolwide agreements, these are increasingly common in schools that have adopted programs such as Positive Behavioral Interventions and Supports (www.pbis.org) and Responsive Classroom (www.responsiveclassroom.org).

Abby Schneiderjohn is a 4th grade teacher in San Jose, California. She joined Steindorf STEAM Elementary School just as the public magnet school was opening its doors in 2016. Steindorf has adopted Positive Behavioral Interventions and Supports as a schoolwide framework. As part of the overarching school culture, students (and adults) at all grade levels share these three expectations: “We are caring and respectful. We are responsible decision makers. We are problem solvers.”

Schneiderjohn started with those broad statements and then asked her students to define—in their own words—how these norms would play out in their classroom. Writing class expectations together was a collaborative experience, but that was just the start of building the culture. The real value comes from reinforcing norms over time. “As new situations come up, we go back to our norms. For example, when we got a class set of Chromebooks, we talked about how we were going to use them effectively. What’s the appropriate use?” Class norms provide both students and teachers with a set of guiding principles for learning together.

**Try This: “T” Up Class Norms**

Here’s how Todd Finley (2014), education blogger and professor of English education at East Carolina University, breaks down his process for engaging students in norming:

1. Start by explaining why norms are important for learning (share the “why”).
2. Then have students work in small groups to generate T-charts. The left column asks them to describe a specific example of something that has interfered with their learning. (For example: *When students laugh at kids who make a mistake, we are reluctant to participate in a class discussion.*) In the right column, teams suggest a norm to prevent that problem from happening. (For example: *We learn from mistakes.*)

3. As a whole-class activity, list everyone’s proposed norms and facilitate a discussion. Which ones help build trust and respect, encourage inquiry, and promote effort to produce good results? What’s missing?

4. Finally, have students vote on which norms to adopt. Share their final list as a classroom artifact, perhaps as a student-made poster that everyone signs.

5. Continue to refer to these norms throughout the year, and encourage students to reinforce them with their peers.

**Physical Environment: The Right Stuff Matters**

The physical environment for PBL sends clues and signals about the classroom culture. Some clues are as obvious as wheels on chairs to encourage flexible seating. (If your school hasn’t invested in flexible furnishings, you can “hack” your way to a low-cost version by putting tennis balls on chair legs to make them slide quietly and easily.) Other clues send more subtle messages about who “owns” the space. Are there writable surfaces—such as poster paper, whiteboards, or even windows—for capturing student brainstorming? Are students empowered to use technology as needed during projects, or do tech tools stay primarily under teacher control? Putting tools into students’ hands promotes student voice and choice, and it reinforces the partnership between teacher and learners.

Abby Schneiderjohn’s elementary classroom is designed to maximize flexibility. Chairs are on wheels, and desks are trapezoids
that can be configured as rectangles of four, circles of six, or semicircles of three. “It’s all super-flexible,” she says, which allows for fast rearrangements necessitated by different learning activities during projects.

That doesn’t mean students are playing bumper cars. Schneider-john is deliberate and transparent about matching the physical setup of the classroom to the learning activity at hand. When a project calls for collaboration, students sit in teams. When students need individual think time, she signals them to “unzip” and make some space between desks. She’s considerate, too, of students who need more structure. “It can be overwhelming for some if we switch it up too often.”

While flexible furnishings such as this can be an advantage, they aren’t essential for PBL. More important is the message about how the space supports student-driven learning.

Elementary teacher Erin Gannon suggests engaging students in the classroom setup as a culture-building activity. “Let them decide the needs of the space for them to be successful. If they create workplaces that allow for collaboration, and they decide where they’ll sit, that sets a powerful stage at the start of the year.”

A PBL-friendly environment also makes supports and scaffolds for student learning visible and accessible. We will discuss strategies to scaffold student learning in Chapter 5, but here are three physical artifacts to consider as culture builders.

**Project wall:** By dedicating a bulletin board or other prominent display space to the project currently underway, you create a central location to manage information, highlight upcoming deadlines and milestones, remind students of the driving question, capture need-to-knows, and point to resources (see Figure 1.3). Although a project wall might sound like an ideal tool for focusing the attention of young learners, it’s equally effective with older students. Instructional coach Ian Stevenson uses a project wall as a teaching tool with high school students. Rather than a static display, their wall is a dynamic space where students post new research questions, use rubrics to assess their learning, and manage their team and individual progress. A digital space can serve the same purpose if all students have ready access to technology.
Sentence starters: Student voice and choice are essential elements for high-quality PBL, but not every student may be comfortable sharing his or her thoughts aloud. For a variety of reasons, some students will need more processing time or support to take part in active discussions. Sentence starters can help get discussions flowing. For example, these sentence starters encourage argumentation and critical thinking: “I see it another way because…” or “Have you thought about…?” or “Here’s the evidence that supports my conclusion …” For English language learners, sentence starters reinforce a culture of safety and trust; students know how to engage with one another productively and appropriately.
Evidence of the “messy middle”: PBL is often described—lovingly—as messy learning. Don’t hide the productive mess that comes with making prototypes and rough drafts. Instead, keep it visible. Use students’ works-in-process as opportunities to ask questions, make observations, and provide formative feedback. There will be plenty of time later to showcase their final, polished products.

Try This: Classroom Audit

Take a classroom audit of your physical environment to look for evidence of a positive culture for learning. What do you notice when you take stock of the following?

- **What students see:** How well do photos, posters, and other pieces of artwork reflect students’ cultures and diverse backgrounds? Are you building a culture that’s welcoming to all? Do students have a choice about what’s on display? Were the artifacts purchased by the teacher or school, or were they made or contributed by students?

- **What students are thinking and saying:** Are students’ ideas captured in their own words on whiteboards or displays of shared norms? Is there any evidence of student work in progress or only final, polished products on display? Do you see sentence frames or word walls to support language learning and scaffold academic conversations?

- **Seating arrangements:** How flexible is your classroom setup? Can students easily change seating arrangements for different learning activities (i.e., individual, pairs, small groups)? Does furniture accommodate special needs, such as “wobble” stools that allow for fidgeting?

- **Who “owns” the stuff:** How accessible are the tools, books, and other resources students need for learning (including technology)?
• **Learning in process:** Can you tell at a glance what sort of project this community of learners is working on? Are there signals that the shared goal is high-quality work? For example, do you see rubrics or other criteria for excellence? Are there exemplars of high-quality work available for students to use as models for their own work?

Based on your audit, consider changes in the physical environment you want to make to improve the classroom culture. To promote inclusivity, how might you involve students or their families in the process?

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**Protocols and Routines:**

**Habits for a Student-Centered Classroom**

Protocols and routines are commonplace in education—and for good reason. Familiar procedures increase efficiency and improve classroom management, preserving time and attention for the business of learning. Through repetition, routines become automatic, requiring little instruction or oversight from the teacher (Lemov, 2015). For example, teachers often have routines for how students turn in homework or how they pass out materials.

Protocols are structured processes that encourage active listening and reflection while keeping a conversation focused on a specific topic or problem. Used effectively, protocols ensure that all voices in a group are heard and valued (Mattoon, 2015). That makes them useful for building a collaborative culture.

In PBL, it’s important to adopt routines that reinforce the culture of student-centered learning. If you don’t want the teacher to be the class expert in all things, then encourage students to turn to one another as information sources with the routine “Ask three before me.”

When students are new to PBL, they may question why school “feels different.” That’s a fair question that goes to the heart of
classroom culture, and it deserves a thoughtful response. One PBL veteran makes a point of helping each new class of 4th graders unlearn routines that emphasize compliance and passivity (e.g., raising hands and sitting quietly until called upon). He encourages a more conversational classroom where students talk and learn together as they engage in projects. That doesn’t mean he invites chaos. With simple hand signals, he helps students recognize when they need to moderate the noise level or transition from teamwork to a whole-class activity.

Like routines, protocols matter in PBL. By using protocols such as gallery walks to focus their feedback, students learn how to give and receive criticism and how to use feedback to make their own work better in subsequent drafts.

✧ Try This: Hold a Gallery Walk

A gallery walk is a critique protocol in which students get feedback from their peers on how to improve their work. Schedule a gallery walk at one or more points during a project as part of your formative assessment plan. (A word of caution: In advance of doing any critique protocol, make sure that students understand how to give and receive critical feedback. Consider modeling the process or using role-plays, sentence starters, and other activities to build and reinforce a positive critique culture.) Here are the basic steps for a gallery walk:

1. Post work to be assessed on classroom walls (or display it digitally). This may be text, storyboards, prototypes of products, or other artifacts.

2. Decide on the process for giving feedback. Students can write on sticky notes to be placed next to the work displayed, write on a feedback form posted next to the work, or use a digital tool to write comments and questions.
3. Be sure students know what to look for. Explain the criteria to be applied, or have them use a rubric or checklist for guidance. Suggest sentence starters to frame their feedback (e.g., “I like,” “I wish,” “I wonder”).

4. Have students move around the room (or go through a digital display) silently to give feedback, allowing enough time to assess each piece of work displayed.

5. After the gallery walk, ask the person or team that created the work to read and reflect on the feedback they got. Then plan next steps/revisions.

**Time Needed:** Approximately 20–30 minutes, depending on how much work is displayed, how complex the assessment is, and how much time is allotted for Step 5.

**Variations:**

- If the work requires an explanation before other students can offer feedback, have one member of the team that created it stay with the work instead of moving around the room.

- The students who created the work to be assessed may post a question or two about which they would especially like feedback. For example, “Does our product sound like it would appeal to our target audience?” or “Did we include convincing evidence?”

Information about other critique protocols, such as the Charrette and the Tuning Protocol, can be found at www.bie.org.

In addition to gallery walks, PBL veterans leverage a variety of protocols and routines that build and reinforce a positive classroom culture. Try your hand at these ideas (many of which you will hear more about in coming chapters).

**Morning meetings:** These are regularly scheduled, low-risk opportunities to check in with students at the start of class. Morning
meetings (sometimes called circles) are helpful for building community, strengthening relationships, amplifying student voice, and supporting students’ social and emotional learning. (Learn more about structures for morning meetings from Responsive Classroom: www.responsiveclassroom.org/what-is-morning-meeting.)

**Thinking routines:** Thinking routines, such as “think, pair, share” or “see, think, wonder,” develop habits of mind important in PBL, such as curiosity, along with content understanding. (Find more examples at Harvard’s Project Zero: www.visiblethinkingpz.org.)

**Fishbowl:** A fishbowl is a discussion protocol that can be used for modeling, discussions, or peer feedback. A small group inside the fishbowl actively participates while a larger group listens and observes from an outer circle. Students can then swap positions so that everyone eventually has a role as both participant and observer. (Learn more from Facing History and Ourselves: www.facinghistory.org/resource-library/teaching-strategies/fishbowl.)

**Closers:** End-of-class routines provide opportunities to bring everyone together to focus on the accomplishments and challenges of the day and reinforce shared norms. During projects, students are often working on different learning activities or with small teams for most of class. Closing routines bring everyone back together, even if briefly, to reconnect as a learning community and anticipate what will happen next in the project. Teacher Erin Brandvold closes each class period by saying, “You’re brilliant. Hardworking. Perseverant.”

**Reflections:** Reflection prompts and protocols invite students to think about their own learning. When used consistently, reflection becomes a habit of mind. Not surprisingly, reflection is an essential element of Gold Standard PBL.

**Celebrations:** Celebrations of learning shouldn’t wait until the end of projects. High-fives, shout-outs, fist bumps, and other simple routines celebrate the small but important accomplishments that unfold along the way.

When introducing protocols that are new to students, take time to explain their purpose. For example, a gallery walk gives students a chance to see other students’ works-in-progress and offer constructive feedback to inform the next draft. Consider using a role-play or
fishbowl to model how a protocol works. Introduce sentence stems to keep the protocol focused. Encourage students to compare and contrast effective responses with responses that are not so helpful.

To emphasize the authenticity of PBL, help students see that the skills they are developing through the use of protocols—such as being able to give and receive critical feedback or understand others’ perspectives—are important not only in school but also in contexts outside the classroom.

Start Small to Start Strong

Starting a new semester or school year with a mini-project is a smart move that helps students get accustomed to the processes and flow of PBL. Instead of starting the school year with reading assignments or labs, high school science teacher Brandon Cohen begins with a mini-project in which students create their own infographic résumés. This starter project makes sense for several reasons. It helps the teacher build strong relationships with students by having them identify their skills, strengths, and interests. Then “later in the semester, when we get into the hard science and more rigorous projects,” Cohen says, “we’ve already developed that trust.”

The infographics project also allows Cohen to introduce software tools and teach students to convey information graphically. He knows that students will need those skills later in the course, when they make signs to explain their scientific products to public audiences. Equally important, the short-term project enables the teacher to introduce students to protocols for critique and revision that they will continue using throughout the semester. “This helps to develop the structures of our class,” he explains. Students learn early in the year how to give and receive criticism and how to use feedback to make their work better in subsequent drafts.

Relatively short, small-scale, low-risk starter projects “let you go heavy on the cultural elements,” says PBL veteran Feroze Munshi. Like Cohen, Munshi invests time early to teach students how to give and receive critical feedback. He fosters a culture of craftsmanship by encouraging students to reflect on the satisfaction of producing
high-quality work. “These are complicated skills that take time to develop,” he adds. “It’s my job help students acclimate to the PBL culture.” If you build that culture early, students will be ready to tackle longer, more content-heavy projects later in the school year.

Abby Schneiderjohn also uses a starter project as a culture builder with her 4th graders. Although their STEAM magnet school is relatively young, it is housed in an older building. Some students know one another from previous schools, whereas others are getting acquainted for the first time. “I want us to come together as a community from day one,” she says. “I want students to go home that day excited about school.” As an entry event, she has construction workers show her students a time capsule they unearthed during renovations. That sets the stage for their driving question: What makes me a unique member of my community? “From there,” Schneiderjohn says, “students launch into learning the history of the school and of themselves.”

During the time capsule project, students take part in daily investigations, team-building activities, and personal reflections. “These are all activities that teachers would naturally do at the beginning of the school year,” Schneiderjohn says, “but we do them in the context of the project. That makes everything flow so much smoother.”

For their final product, students use the school’s makerspace to create artifacts for their time capsule that reflect something about themselves. Then they present their products to parents at an exhibition. Parents give them feedback, using the same sentence stems that students had learned to use for critique (“I like,” “I wish,” “What if?”). Through this short-term experience, both students and parents are fully immersed in the PBL culture. “It’s a great way to jump in,” Schneiderjohn says.

Schneiderjohn’s example underscores the importance of investing time and intention in building the PBL culture. Everyone involved in the learning community needs to feel welcome and included in creating and supporting a positive culture. That means parents as well as teachers and students. Use opportunities to connect with parents—such as back-to-school nights, conferences, and class newsletters or
web pages—to help families understand why PBL may look and feel different from more traditional school.

Here are two more ideas for mini-projects to help you and your students get off to a fast start:

**Cracking the Case:** When Julia Cagle and Tom Lee were teaching in a freshmen academy at Morris Innovative High School in Dalton, Georgia, they started the school year with high drama. Students arrived on campus the first week of school to find a mystery that needed to be solved. To crack the case, students had to generate questions, consider evidence, and team up with classmates to compare conclusions. There was no point in sitting and waiting for instructions—they had to get active if they were going to figure out whodunit. Meanwhile, teachers had the opportunity to get acquainted with students and watch their interactions with one another. “This was a cool way to get calibrated to Project Based Learning,” says Eric White, who was previously an instructional coach at the school. “An induction project like this starts things off with a bang and builds a culture of teamwork. It’s worth the time up front to introduce students to PBL processes.”

**Lip Dub:** At Applied Technology Center, a PBL high school in Montebello, California, students spent their first two days of the school year working on a “lip dub” music video production to celebrate their school. Teacher Krystal Diaz credits the school’s student leaders with planning and organizing the event. Students embraced the lip dub as a way to build school pride while giving incoming 9th graders a crash course in PBL processes. The mini-project was intentionally light on academic content but heavy on culture. Within two days, students had to go from team building and brainstorming to filming and editing. Mistakes offered opportunities for do-overs, reinforcing a culture of risk taking and learning from failures. To help adults facilitate this collaborative experience, student leaders produced a timeline and facilitation guide. The mini-project was structured so that every student had an assigned role, which played to his or her strengths. Although students and teachers took the work seriously, they didn’t forget the fun factor. Says Diaz, “Our lip dub gave us the chance to
Team-building activities are shorter than starter projects but offer big benefits when it comes to building a collaborative culture for PBL. Elementary teacher Jim Bentley likes to use team builders like rope challenges or the popular Marshmallow Challenge outside academic content so that collaboration skills are the main focus. Coming up with a team name or logo can also be an effective team-building activity. Middle school teacher Heather Wolpert-Gawron kicked off a new school year by having student teams solve clues to open a “breakout box” she left on each table. “Each lock can only be opened by working together to solve a clue,” she explained. Along with cracking clues, student teams had to work together to solve puzzles that related to content. (Learn more about breakout boxes for education at www.breakoutedu.com. For more team-building activities, see the creative practice problems at Odyssey of the Mind—www.odysseyofthemind.com—or the quick games to get groups working well together at Gamestorming, http://gamestorming.com/category/games-for-opening.)

After any team builder, take time to have students debrief: What helped or hindered their team’s effort? Did everyone on the team have a voice and chance to contribute their talents? If they could do the challenge again, what would they want to do differently?

Coaches’ Notebook: Culture Builders

If you have access to an instructional coach in your school system, take advantage of this resource to support your growth in PBL. For example, invite the coach to visit your classroom. What does he or
she see and hear that indicates a culture that is welcoming, is respectful of students’ home cultures, and invites student voice and choice? What’s missing? An instructional coach or other colleague who is versed in PBL can bring an extra set of eyes and ears to help you fine-tune your practice.

To help teachers build a classroom culture that fosters student thinking and supports PBL, instructional coach Myla Lee uses informal observations, structured protocols, and evidence to encourage productive coaching conversations. Among the tools in her coaching toolkit are the following techniques.

**Ghost walk:** This protocol is among those recommended by Ron Ritchhart, Harvard professor and author of *Creating Cultures of Thinking* (2015). It starts with the teacher generating a list of what he or she would expect to see as evidence of a culture of thinking. With that list in hand, Lee walks through the classroom when there are no students present. She takes photos and makes notes. Then she debriefs with the teacher about the evidence she has gathered. For example, how much of the “stuff” on the walls was made by students? Does it tell the story of learning in progress, or is it only the final, polished product? How well do the artifacts reflect students’ home cultures? Are there mixed or confusing messages?

**Data collection:** In response to teacher request, Lee will do a brief data collection during class time. “Teachers may want to know more about student questioning, so I will spend 30 minutes in class tallying what I hear. Who’s asking the questions? What kinds of questions do students ask? Then I’ll have a coaching conversation with the teacher. I’ll share the data and ask, ‘What do you notice?’ That often gets them to an aha. They’ll say, ‘Wow, I did all the talking! I asked all the questions!’”

**Informal observations:** Informal classroom visits give Lee more information to bring into coaching conversations with teachers. The more specific her observations can be, the better. For example, are students using protocols and thinking routines during traditional lessons that could also be useful in PBL? Does the teacher make scaffolds readily available to support language learners and reinforce academic vocabulary? Are students working well in groups, or do they
need to learn new routines to support collaboration before teaming up on a project?

When it comes to classroom culture, Lee adds, it’s worth remembering that PBL is not just what happens in one unit. “It’s a culture that takes shape long before the project begins. When that culture is in place, you see it and feel it.”

Not every teacher has access to instructional coaching. If this support is not provided in your school setting, think about inviting peer teachers, grade-level or content-area leaders, or administrators to provide focused feedback to help you fine-tune your PBL practice.

**Strategies to Build the Culture: Key Takeaways**

In this chapter, you have read about a number of strategies to help you build a positive classroom culture that will support all learners in PBL. Which of these strategies are already part of your practice? Which strategies are you ready to introduce next?

**Beliefs and values:** What do you do and say to encourage

- High expectations for all? How do you let students know you think they can succeed (and will support them through challenges)?
- A culture of excellence? How do you encourage students to aim for high-quality work and not simply check off assignments?
- A growth mindset? How do you communicate and model the need to put in effort to get results?
- A welcoming and safe community? How do you help every student feel included and valued?

**Shared norms:** Do students have a voice in establishing and reinforcing norms for learning together? How do you use shared norms not only to kick off the year but also to sustain a positive culture for the long term?

**Physical environment:** How might you increase the flexibility of your physical space to allow students to work independently, in small groups, or as a whole class? Do students have ready access to the tools and resources they need during PBL? What’s on their wish list?
**Routines and protocols:** Which of the many routines and protocols mentioned in this chapter are already part of your teaching practice? How are you incorporating them into PBL?

**On Your PBL Bookshelf**

*Creating Cultures of Thinking: The 8 Forces We Must Master to Truly Transform Our Schools:* Ron Ritchhart, senior research associate with Project Zero at the Harvard Graduate School of Education, dives deeply into thinking about thinking in this practical book. With classroom vignettes and probing questions, he prompts teachers to closely examine everything from the language they use to the routines they introduce to encourage student voice, inquiry, and other nonnegotiables for PBL.

*Culturally Responsive Teaching and the Brain: Promoting Authentic Engagement and Rigor Among Culturally and Linguistically Diverse Students:* Author and educator Zaretta L. Hammond connects insights from neuroscience with strategies for culturally responsive instruction. Her strategies for closing the achievement gap begin with the belief that all children can think critically and learn deeply.

*An Ethic of Excellence: Building a Culture of Craftsmanship with Students:* Ron Berger, chief program officer for EL Schools (and well known among PBLers as the star of the Austin’s Butterfly video), makes a compelling case for attending to craftsmanship and quality.

*Identity Safe Classrooms: Places to Belong and Learn:* Veteran educators Dorothy M. Steele and Becki Cohn-Vargas use the term *identity safe classroom* to describe learning environments where every child feels welcome and eager to learn, especially those who have previously experienced repeated failure, heavy-handed discipline, or negative stereotypes. The authors encourage setting high expectations for all learners, cultivating diversity as a resource, and encouraging students to make choices and take responsibility for their learning.

*School Climate Change: How Do I Build a Positive Environment for Learning?* This short-format book by Peter DeWitt and Sean Slade offers practical strategies to promote equity and create a safe, welcoming school climate.
About the Authors

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