PREPARING TEACHERS FOR A PROJECT-BASED WORLD

IT'S A
PROJECT-BASED
WORLD

This publication is the second in a three-part series about the new economy and inequities in the preparation for student success in college, career and citizenship. The purpose of these publications is to promote equity and access to deeper learning for all students. We aim to elevate diverse voices to ensure that all students are prepared for college, career and citizenship and that all students experience a deep engagement in their own learning.

The first paper, *Preparing Students for a Project-Based World*, explores economic realities, equity, student engagement and instructional and school design in the preparation of all students for college, career and citizenship. This includes the need to experience project-based work aimed at deeper learning outcomes.

The final paper, *Preparing Leaders for a Project-Based World*, will illustrate examples of leadership development programs and leadership sustainability in diverse communities across the United States, highlighting leader projects and the ways leaders are fostering deeper learning outcomes at scale.

To learn more, and for ways to contribute or partner on subsequent publications, see the It's a Project-Based World campaign page and share using #DeeperLearning and #ProjectBased.

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INTRODUCTION

Four decades ago, microprocessors began to make computation faster and cheaper—and that changed almost everything. The resulting information age has been driven by speed and connections.

Fifteen years ago, educators and employers outlined skills that would be required for the new century including communication, collaboration and critical-thinking.[1]

Today, we live and work on digital platforms, and devices, computing and storage are nearly free. For many, work is organized as short gigs (repetitive tasks) or projects (longer term, often more original tasks). Employers, employees, and entrepreneurs are navigating the fast-paced gig economy where marketing, services and project management reign supreme.[2]

Looking forward, every repetitive application will soon be automated—from driving, to accounting, to reading X-rays and diagnosing disease. The automation economy is producing great disruption and great opportunity. There are obvious opportunities in data science and coding. Less obvious is the critical need to support deeper learning experiences to prepare young people to do what artificial intelligence doesn't do well: give a hug, solve a mystery, tell a story, solve problems, build relationships and focus on adding value in novel situations.[6]

We should be preparing young people for novelty and complexity by creating opportunities for them to experience success in leading projects, independently and with diverse teams, addressing big challenges and producing high quality public products.[7]

IT'S A PROJECT-BASED WORLD

Projects are multi-step sprints to a public product or deliverable. Sometimes undertaken by individuals, often team-based, projects usually have a timeline and resource plan. Examples include:

- Architects, artists and carpenters have clients. Each client has a different desired outcome, budget and set of constraints for each project.
- Computer programmers plan, design and code to build projects aiming at specific deliverables that are often dependant upon other team deliverables.
- Teachers often work together on a shared improvement objective: they build a plan, learn together and implement step by step.

About a third of American workers are engaged in some kind of freelance work.[3] By 2020, about four in ten or about 91 million Americans will be engaged in quick "gigs" and project-based work.[4] The result being that the vast majority of young people today will be freelancers or work in a project-based profession.[5]

IMPLICATIONS FOR PREPARING TEACHERS

How do we prepare teachers for this new work? We start by asking what graduates should know and be able to do. Community conversations yield consensus around deeper learning outcomes including critical thinking, communication, collaboration, problem solving, self-management, persistence and learning to meet new challenges.

Next, we observe the experiences most likely to develop these skills and dispositions. Leading districts and networks are deploying combinations of personalized and project-based learning. In Preparing Students for a Project-Based World, we summarized what this would look like and exactly what prepared students would know and be able to do. In sum, throughout students' academic careers they should have opportunities to do real-world work, get ample feedback from authentic audiences, engage in frequent projects that require teamwork and collaboration and have access to personalized learning environments.

Finally, we should construct similar next-generation preparation and development experiences for educators. By combining blended and personalized learning with meaningful projects and periodic demonstrations of mastery, educators will be prepared for this new work.

The task is twofold. First, designing new learning environments—perhaps many different kinds—with different approaches linked to unique assets. Second, preparing teachers to be successful in those environments. Schools of education should be leading the R&D work to develop new learning models and prepare educators.

Jim Postl, a former Fortune 500 CEO, described both challenges: "Our economy needs workers with the skills and expertise fostered by innovative educational models. Embracing those models will help ensure that we'll have the supply of good, qualified people necessary to close our skills gap and preserve our economic success."

In this paper, we share a vision for teacher preparation and beginning teacher professional development—a vision that embraces the opportunity of personalized project-based learning (PBL) for all students. This paper focuses on pre-service preparation and the first few years of teaching and outlines what a well-prepared teacher should know and be able to do. Drawing upon experts and experienced PBL leaders, our intent is to recommend a path forward.

QUESTIONS ADDRESSED IN THIS PAPER:

Why do we need to prepare teachers for PBL?
What are the elements of ideal teacher preparation and professional development?
What does it mean to be a PBL prepared teacher?
How can we prepare and continue to develop PBL teachers?
Who is doing this work well and how can we learn from them?
How can educators get started and what are some recommendations?

GENDIY

There has never been a better time to make a rewarding contribution: build a business, make a difference or influence a wave of change. It's never been easier to learn, to skill up to meet new challenges or to turn interests into expertise. On the other hand, the world is complicated, competitive and changing fast. College is more expensive than ever and a degree is no guarantee of a job.

In an effort to make sense of this new landscape, the Generation Do-It-Yourself (#GenDIY) project (sponsored by the J.A. and Kathryn Albertson Family Foundation) is a campaign by and about millennials charting their own course to a career they love.

WHY DO WE NEED TO PREPARE TEACHERS FOR PBL?

"Schools of education are providing one of the most important services in America today, training our future teachers who will prepare our children to succeed in work and in life. No other responsibility is more directly linked to our future,"

—Arne Duncan, former U.S. Secretary of Education, in an open letter to college presidents and education school deans

In addition to the following five reasons, Strobel & van Barneveld also found that "teachers ultimately find the PBL approach to be more rewarding and enjoyable than traditional teaching methods."[17]

1   **Students need to be prepared for PBL, so that means teachers do as well.** For freelances and full-timers, it's a project-based world. Project-based work allows for global collaboration and communication, which is becoming increasingly common in current jobs.[8] As outlined in Preparing Students for a Project-Based World, students should have experiences that lead them to be ready for this work. In order for students to have these experiences, we need to provide teachers with preparation and professional development so that they may achieve positive PBL results.

2   **Current preparation and development methods are becoming inadequate.**[9] Each year, about 220,000 teachers are certified through traditional teacher education programs.[10] While it is encouraging to see leading programs adopting new learning models, many have not done so. Other than graduate employment (which is easily measured), assessing the success of university-based preparation programs can be challenging, but there is growing evidence we need to rethink preparation and professional development of teachers.[11] The U.S. Department of Education released new regulations aimed at assessing education colleges for this very reason.[12] A Fordham Institute series concluded that "most preparation programs are doing a lackluster job of teaching their candidates how to teach."[13] When surveyed, practicing teachers have said they do not feel prepared and that their professional learning is often no better.

3   **New learning models require new roles and skills.** The shift from print to digital learning is leading to a proliferation of blended and personalized learning models. A growing number of schools are combining personalized and project-based learning in exciting ways. These next-generation models require new skills and dispositions for teachers. Examples include collaborating with colleagues on the development of interdisciplinary projects, and helping a student outline a project that combines interests and standards. iNACOL identified the need for a seamless continuum of teacher preparation and development and updated policies to reflect these current school systems.[14]

4   **Teaching is a project-based profession.**[15] Many teachers might in fact be the first to say that they are already doing projects on a daily basis to prepare for instruction. School districts increasingly manage their improvement and innovation agenda as a series of projects. New learning models are creating new roles for teachers as multi-classroom leaders, multi-grade team leads, coaches and technology specialists. It's likely that teachers will manage their own work in projects and participate in and lead teams throughout their careers—they deserve preparation in project management.

5   **Project-based learning is a flexible organizing framework.** With constant changes in education, project-based teaching is an organizing framework that can encompass new content areas or initiatives. In the past couple of years, we have seen the rise of new subjects like coding, new strategies like blended learning, and more emphasis on social and emotional learning.[16] These subjects can all be turned into implementation projects for teacher teams and incorporated into student learning projects.
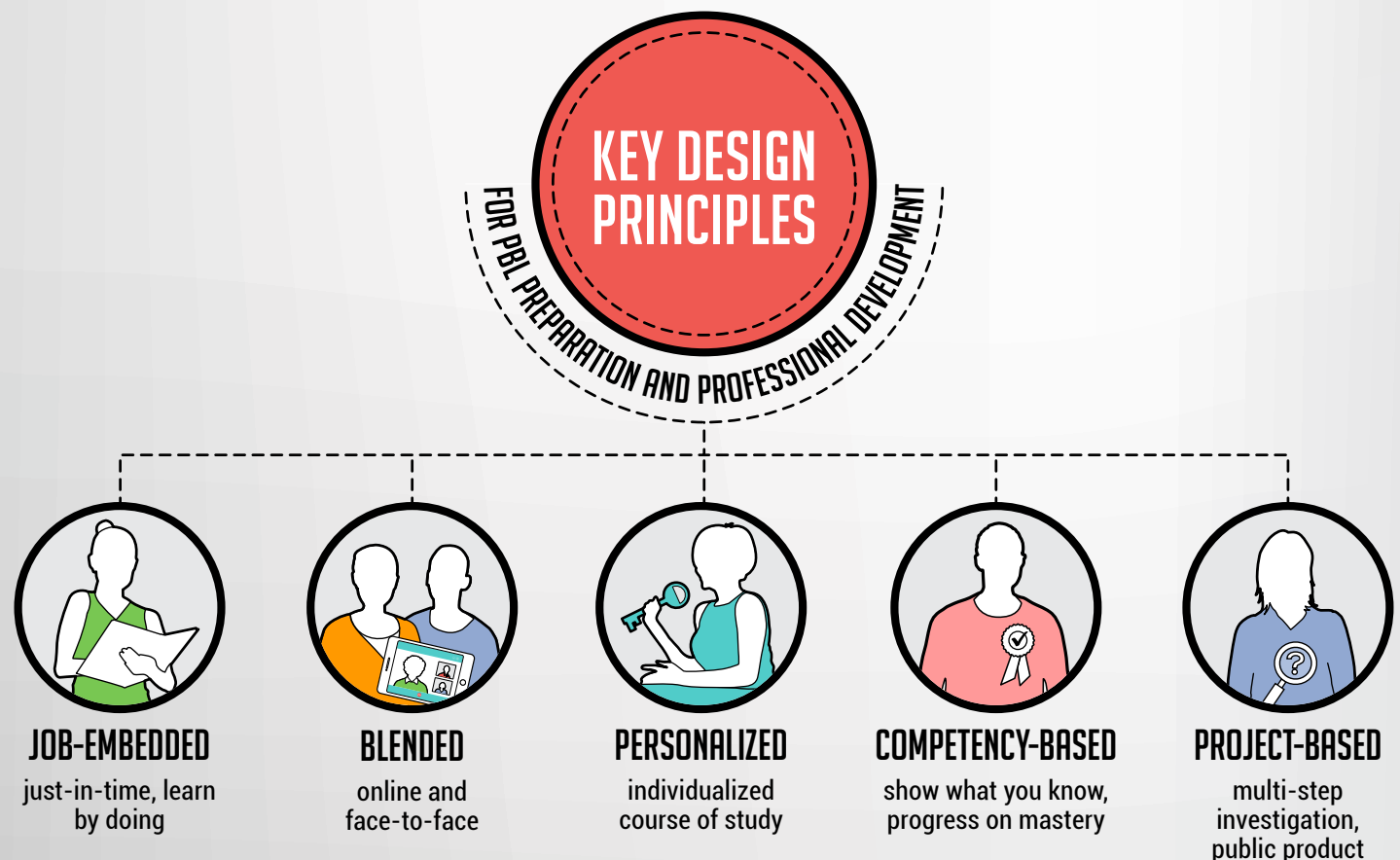
KEY DESIGN PRINCIPLES

What are the elements of ideal teacher preparation or professional development for PBL?

In Preparing Teachers for Deeper Learning, we wrote about the need for teachers to have more job-embedded, competency-based, personalized and need-focused learning opportunities. Teacher preparation and development should reflect a balance of these ideas and also be project-based. Arguably just as important as these design principles are the following two elements that should underpin any preparation or development program:

Coaching & Support. "The paradigm shift from teacher to project-based learning (PBL) facilitator is not one that happens overnight," stated Jenny Pieratt. Educators deserve supportive instructors, administrators, mentors and coaches that embrace the fact that learning to facilitate PBL is an ongoing journey. Teachers who have a coach or mentor who guides them—through a cycle of teach, measure, learn, repeat—will increase their likelihood of demonstrating desired teaching practices and feel confident in attempting new ones.[18] Effective coaches provide feedback and scaffolds based on indicators of high-quality project-based teaching and learning, such as those on the New Tech Network Classroom Walkthrough Tool (many of which relate to project facilitation) or the Thrive Public Schools Project Development Rubric. This is especially helpful in PBL, as there are unique facilitation skills at each stage of a project.

Connected Learning Experiences. Strong student projects often include lots of collaboration and connections to real-world, authentic audiences.[19] This should be consistent, and core to teacher experiences. Teachers should be encouraged to connect not only with other educators but also with members of the community and people outside of the field of education. This can only improve teachers' project designs and understanding of how to make experiences more relevant in the 21st century for students. Furthermore, professional development for early career teachers should also be connected to, and a continuation of learning in preparation.[20]

KEY DESIGN PRINCIPLES

FOR PBL PREPARATION AND PROFESSIONAL DEVELOPMENT

JOB-EMBEDDED
just-in-time, learn by doing

BLENDED
online and face-to-face

PERSONALIZED
individualized course of study

COMPETENCY-BASED
show what you know, progress on mastery

PROJECT-BASED
multi-step investigation, public product

JOB-EMBEDDED

Teachers, both during preparation and their professional development, need to spend a great deal of time in next generation environments and schools and learning directly in school contexts. Without actually experiencing what it is like to teach and learn in these environments, a teacher is guessing in the classroom. Visiting effective classrooms and schools is a valuable form of professional learning.[21]

Students have a series of practical experiences across their years at Minerva (an innovative new university but not a teacher preparation program). They participate in recurring activities at specific sites, and complete location-based assignments and challenge projects tied to those locations.

At Pennsylvania State College of Education and at Emporia State University, pre-service teachers in their senior year are a part of a Professional Development School where they spend every day teaching & learning in a local classroom.

BLENDED

Like student learning, professional preparation and development should be a thoughtful combination of face-to-face and online learning. The online portion can include a curated collection identified by an instructor or coach as well as just-in-time resources to address a pressing problem. Virtual learning communities also have shown to be a great vehicle for teacher learning.[22], [23]

Relay GSE is not only a blended program, it also offers training in blended learning for teachers. Teachers can take courses (including a series on blended learning) through Relay Learn, their online platform. With a motto of "Learn. Practice. Perform.," teachers at Relay get ample time to have authentic school experiences.

Collections on Bloomboard allow teachers to find just the right resource for their professional learning plan or problem of the day, including resources on PBL. They also host micro-credentials offered by Digital Promise on PBL and deeper learning.

PERSONALIZED

Many traditional teacher preparation and professional programs are predetermined and not designed to meet individual teacher needs.[24] Teachers deserve personalized experiences targeted to skills and concepts they need to work on or want to learn more about.[25] A foundation of PBL is that students present products that ideally are tied to a context or cause that is meaningful for each respective student. Teachers ought to be able to pick how they present or the product they create to demonstrate their learning, too.[26] One way to accomplish this is through personalized learning plans.

Teachers at Summit Public Schools personalize their own learning. Teachers have at least 40 days of professional learning each year and use a Personalized Learning Plan for Professionals to guide their learning. There are seven dimensions to their model (Content, Assessment, Curriculum, Instruction, Knowing Learners and Learning, Leadership and Mentoring).[27] Each individual teacher is on a personal path to growth in each of those seven dimensions (teachers start at basic and move onto proficient, highly proficient and expert). Teachers receive personalized feedback on their performance from peers, students and parents.[28]

NYC Teaching Fellows, and other programs part of The New Teacher Project, provide ongoing coaching and personalized support for teachers while they practice in classrooms alongside a mentor teacher.[29]
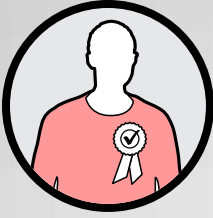
COMPETENCY-BASED

"Transformation of the educator workforce must begin with development of educator standards and competencies which reflect the skills and professional responsibilities educators will need to transition to competency-based instruction,"[30] write Dale Frost, Maria Worthen and Susan Patrick of iNACOL. Teacher preparation and professional development should ensure that a greater proportion courses and trainings are competency-based. Teachers should have the opportunity to retry or revisit their work if they do not initially demonstrate mastery and also should be able to move on once they have.

At Western Governors University, teachers can go through an alternative certification process that is competency-based and online.[31] This program is accredited and allows for teachers to work through their training on their own time.

In the Kettle Moraine School District, Superintendent Deklotz encourages teachers to earn competency-based micro-credentials. In an interview on teacher preparation, Deklotz said about 80 percent of teachers in her district have a competency-based micro-credential.

PROJECT-BASED

Teachers need to have project-based experiences themselves. Project-based professional learning will expose them to what it feels like to learn through projects and, in turn, help them be better facilitators. Elements of project-based learning—including learning focused on a driving question or problem of practice, ongoing and sustained inquiry and opportunities to present to and share with peers—are also applicable to effective teacher education and development.[32]

High Tech High Graduate School of Education uses PBL as the pedagogy for their credentialing programs and professional development. Teachers regularly engage in projects themselves, and learn how to facilitate project-based experiences for students.

At Da Vinci Schools, teachers participate in a Project Pitch Panel to get feedback and ideas on their projects from industry experts. Teachers also receive contacts and resources from panel members to help make their project ideas more relevant to the real world for their students.

PRACTICES OF PBL PREPARED TEACHERS

WHAT DOES IT MEAN TO BE A PBL PREPARED TEACHER?

Before exploring ideal project-based learning (PBL) preparation and professional development that incorporate these design principles, first we outline the goal—or what a PBL teacher ideally knows, believes and is able to do. Exemplary teachers facilitate high-quality PBL for students, but they also commit to additional practices outside of their instruction that help them grow their craft and lead in their profession.

PRACTICES OF PBL PREPARED TEACHERS

Has project mindset, is a skilled project manager. A teacher with a project mindset views projects as the organizing framework for how they get their work done and for how students learn. They are able to manage projects well by keeping the driving question in mind and allowing for flexibility during the learning process. They tolerate (even embrace) ambiguity, are curious and entrepreneurial and view their own work as project-focused.

Skilled facilitator of personalized learning in a blended environment. Schools and classrooms are changing. The use of blended learning, project-based learning, flipped classrooms and other innovations that facilitate personalized and individualized learning is increasing, accelerated by advances in technology.[33] A PBL prepared teacher is someone who is nimble in blended and personalized learning environments. They personalize learning in preparation for PBL (as well as making PBL a personalized experience).

Exemplary PBL facilitator. A prepared PBL teacher needs to be an exemplary PBL facilitator, one who understands how to design and plan excellent learning experiences for students. They should know how to build a culture of inquiry and personalize learning, and scaffold PBL participation. PBL facilitators expect students to manage the steps in a project but they know when to check in on students' work and encourage them to persist. "If the teacher isn't assessing all along the way then the final product will not typically show the high quality of success," said Ron Berger, of EL Education.

Participates in PBL professional learning. A PBL prepared teacher views their work as an ongoing learning process and realizes there are always ways to grow and improve. They not only know the foundations of PBL, but are able to compare and appreciate related strategies that can enhance their teaching practice. These educators stay "in the know" and continuously read, research and connect with others involved in this work. Like teachers across the New Tech Network, PBL teachers collaborate virtually, share projects and visit schools together. Their PBL PLCs extend far beyond their own classroom walls.

Plans for deeper learning outcomes.
PBL teachers aim for all students to achieve deeper learning outcomes through work on projects. "When we talk about high-quality PBL, we mean the type of PBL that leads to deeper learning outcomes," wrote Bonnie Lathram, Bob Lenz and Tom Vander Ark in Preparing Students for a Project-Based World. Teachers see the need to grow students' abilities to connect, think critically about a driving question, become self-directed learners, communicate with a myriad of different audiences and genuinely learn about how to learn.

Models lifelong learning—*not perfection*. A PBL prepared teacher seeks to create deeper learning experiences for students in his or her classroom, rather than have them on a path for perfection and perfect scores. A student from Bulldog Tech said in an interview that they feel a strong PBL teacher helps them persist, even if they don't get it right the first time.[34] These educators are happy with the ebbs and flows of the journey and do not expect an immediate reward, either for themselves or their students. They realize that in PBL there is a constant need for prototyping and iteration.

10 PBL TEACHER MINDSETS

1 SEES PROJECTS AS THE OVERARCHING FRAMEWORK THROUGH WHICH THEY CAN ADDRESS OTHER ACADEMIC CONTENT AND IDEAS.

This can be hard to do, especially to ensure all learner needs are met. Listen to Gia Truong from Envision Schools on a Getting Smart Podcast talk about how her organization academically prepares all students through projects.

2 CONNECTS OTHER IMPORTANT PERSONAL DEVELOPMENT GOALS FOR STUDENTS, SUCH AS SOCIAL AND EMOTIONAL LEARNING, INTO EACH PROJECT.

Big Picture Learning schools do this well, with a focus on the personal qualities embedded in their students' project plans. For more, see Big Picture Learning's guidebook on non-cognitive attributes for college and career readiness.

3 MANAGES PERSONAL IMPROVEMENT, LESSON PLANNING, PLCS, ETC. AS PROJECTS.

Summit Public Schools' staff members demonstrate this through their own planning, often cross-collaborating and modeling the project process to create curriculum.

4 POSSESSES CURIOSITY ABOUT THE WORLD AND IS A LIFELONG LEARNER.

PBL teachers move beyond their comfort zones and nudge themselves to learn new skills and talk about their own learning with students.

5 VIEWS PARENTAL INVOLVEMENT, BACK TO SCHOOL, SCHOOL IMPROVEMENT AND OTHER INITIATIVES AS PROJECTS.

PBL teachers model the project process through their work at the schools inside and outside of the classroom.

6 SEES LEARNING AS A SERIES OF PROJECTS, ALL LEADING TO DEEPER LEARNING OUTCOMES.

Each project is seen as a sub-project of lifelong work in learning about the world and teaching students how to think critically and solve complex problems.

7 HAS AN INNOVATION MINDSET.

"Beyond the basics, the most important aspect of career readiness may be developing an innovation mindset—being prepared to create one's own job and the curiosity, self-direction and commitment to add value in every circumstance," wrote Tom Vander Ark.

8 SEES PROBLEMS THAT NEED TO BE SOLVED AS A POSITIVE CHALLENGE.

PBL teachers see students as a big part of solutions to large-scale social problems or school- and classroom-based challenges., trusting students to bring creative ideas to help solve the world's toughest problems.

9 IS ABLE TO BALANCE RIGHT-BRAIN AND LEFT-BRAIN ACTIVITIES.

Teachers can manage the details of projects and all that comes with facilitating great PBL, but also are fluid and can be open-ended and flexible while they are going through the process.
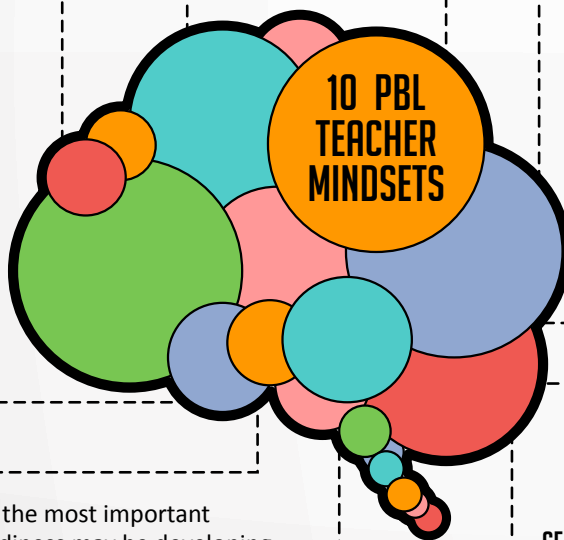
10 EMBRACES TENSION BETWEEN CLARITY AND AMBIGUITY.

PBL teachers set high expectations, are clear on goals and outcomes and also know that things might not go exactly according to plan. They are clear on the "bigger picture" and rest in assuredness when things are more ambiguous. Balancing that is tricky, but with practice, PBL teachers do this with grace.

TEACHER PREPARATION

HOW DO WE GO ABOUT PREPARING PBL TEACHERS? WHAT WOULD AN IDEAL PROGRAM LOOK LIKE?

In order to cultivate future educators who regularly demonstrate project-based learning (PBL) practices and are effective in preparing students for our increasingly project-based world, we must rethink the design of teacher preparation. At the very least, teachers should be doing more projects and learning about how to facilitate great high-quality PBL.

ENVISIONING AN IDEAL PROGRAM

The following is an outline of the needed shifts and a mock-resume of a graduating student in a preparation program. These examples are intended to illustrate our ideas about an ideal preparation experience. Delineating an exact sequence is less important than ensuring that teachers have these types of experiences and have many of them.[35]

"Most of life is a project and exhibition."

—Larry Rosenstock, a founder of High Tech High, as quoted in the film *Most Likely to Succeed* and article, "Most Likely to Succeed: A Film About What School Could Be"

"Just like doctors in training, aspiring teachers need sustained clinical experiences alongside expert practitioners to build links between educational theory and practice and to develop the hands-on techniques and strategies that help children learn."

—"Five reasons teacher residencies often outperform traditional training" by Karen DeMoss, director of Bank Street College's Sustainable Funding Project

From Traditional Methods[36]	To Future PBL Preparation Pathway
Majority of time in courses on campus	**Job-embedded** Coursework is coupled with experiences where students apply what they're learning in the field. Frequent visits to next generation school models (including those that are project-based) are a core pillar of preparation programs.
Structured, pre-determined courses and sequence	**Personalized** Students move through a program sequence as they are ready and receive regular feedback and support specific to their learning of core content and related projects. Students have some choice in their path.
Norm-referenced and grade-based[37]	**Competency-based** Teacher preparation programs still use standards, but also focus on having students demonstrate the competencies within each standard.[38] Deeper learning outcomes are integrated into desired course outcomes.
Majority of coursework is face-to-face	**Blended** Students have options to learn material online and at a distance, allowing for more time to visit project-based schools (virtually if need be).
Products are primarily papers, unit or lesson creation and reflections	**Project-based** Traditional products can still be used, but are reframed as projects. Students frequently present work to peers, co-teachers and/or professors. Students upload project work to a digital portfolio throughout the program in order to document their progress.

TEACHER GRADUATE

I'm an educator seeking a position in a project-based school where I can learn alongside my fellow teachers and with my students.

@ [email address]   🔗 [website]

MOST PROUD OF

PROJECT-MINDSET
I overheard two Public Works Department employees discussing a local water issue. I thought it was a great project opportunity for my students and so I asked if they would be interested in having my students help. My students generated great solutions and shared them with the entire local Public Works Department.

FAILURE AS A LEARNING EXPERIENCE
I tried to do a project with students, but didn't consider the feedback from my mentor teacher about aligning it to student interests enough. My students didn't engage they way I thought they would. This taught me to consider student and colleague feedback before and during projects.

PROJECT DURING MY STUDENT TEACHING
Planned and co-taught a very successful project with my mentor teacher about what is driving change in the field of transportation.

STRENGTHS

PROJECT-MINDSET

BLENDED LEARNING FACILITATOR
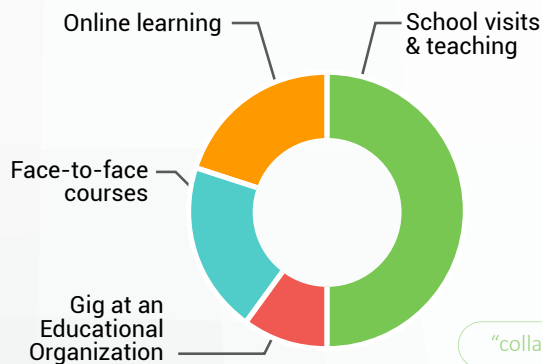
CLASSROOM EXPERIENCE

MICRO-CREDENTIALS

⭐ Digital Promise Managing Project Cycles

⭐ Digital Promise Making Projects Real

A WEEK IN MY LIFE

Online learning

School visits & teaching

Face-to-face courses

Gig at an Educational Organization

EDUCATION & EVIDENCE

→ Master of Arts in teaching
→ Project-based learning credential
→ EdX project management online course
→ Link to my Digital Project Portfolio
→ Link to my personalized learning plan

"collaborative"   "great"   "innovative"

This mock resume is adapted from Marissa Mayer's.

Universities, colleges and programs across the country and around the world (see New South Wales Project-Based Toolkit) are working to integrate these ideas into their work and serve as examples to learn from and look to.

SOUTHERN NEW HAMPSHIRE UNIVERSITY 🔗

SNHU offers online and in-person graduate degrees in education. Their focus is on providing students with highly personalized experiences. College for America, which is a part of SNHU, offers flexible competency-based programs that are also project-based. Students receive constant feedback and support as they progress through their degrees.[39]

ALVERNO COLLEGE 🔗

Alverno requires over 125 hours of field experience in the public schools and uses a flexible, ability-based curriculum. *"The reason our unique education works is simple—it's a model of the real world. A world where there are no letter grades and where learning comes from actually doing a task, versus simply reading about it."* —Quote from the Alverno website

UNIVERSITY OF VIRGINIA - CURRY SCHOOL OF EDUCATION 🔗

The Curry School launched a fellowship initiative where teachers complete a one year paid residency and one year of supervised teaching.[40] Many of student teaching placements are in Albemarle County Schools, which have been recognized for their innovative schools and dedication to providing next gen learning environments for all students.[41]

Through MyTeachingPartner, created by researchers at U.Va.'s Center for Advanced Study of Teaching and Learning, teachers upload video of their practice and get feedback from an instructional coach. As a result, teachers are receiving more personalized attention based on real situations and classroom scenarios.

SOUTH CAROLINA SCHOOL OF EDUCATION PBL TEACHING ENDORSEMENT/ CREDENTIALING INITIATIVE 🔗

Educators pursuing graduate studies in one of four universities in South Carolina (Claflin University, College of Charleston, Furman University and Winthrop University) can take three different courses in PBL to earn an add-on endorsement.[42] *"Experts from New Tech Network and educators teaching in South Carolina PBL schools also participated in the [credential development] process."* —From The Riley Institute website

TEACHER PROFESSIONAL DEVELOPMENT

HOW DO WE CONTINUE TO DEVELOP PBL TEACHERS?

Teachers who are early in their careers as educators have a unique set of needs. Once in their own classrooms, they are learning and managing the ins and outs of school while also still honing and improving their teaching craft.[43] There are many organizations and schools across the country that are providing teachers with meaningful, project-based professional development. In observing their work, we noticed the following:

> *"No school is a masterpiece, but if we can design professional development that allows adults to become the best versions of themselves, then perhaps we can create classrooms that allow students to be the best versions of themselves as well."*
>
> —"Transforming Schools Through Strengths-Based PD" by Laura McBain, Director of External Relations at High Tech High Graduate School of Education

From Traditional Teacher Professional Development[44]	To Innovative Professional Development
After-school or summer trainings	**Job-embedded** Teachers visit and observe other PBL educators and schools. Teachers co-teach, work with critical friends, conduct lesson study and lead learning experiences for other teachers.[45] Professional learning regularly happens during the school day.[46]
One-size-fits-all professional development	**Personalized** Teachers are able to select some of the PBL courses or trainings that they take. Teachers can indicate individual goals and corresponding development work on a personalized learning plan.
No required demonstration of mastery or understanding	**Competency-based** Teachers demonstrate competencies either via earning a micro-credential or through their teaching of projects. Teachers work to demonstrate competencies over time and throughout trainings and professional learning experiences.
Usually in a workshop setting[47]	**Blended** Teachers go through some of their training and professional development online. Teachers receive personalized feedback and support through online coaching and tools.[48]
Lecture-style professional development, training or workshop	**Project-based** Teachers work on projects that are connected to goals in their personalized learning plans. Teachers design, lead and participate in activities that give them insight into the PBL process or connect them to a meaningful partner that students could work with.

The following are examples of schools and organizations that exhibit some of these professional development recommendations:

KATHERINE SMITH ELEMENTARY SCHOOL 🔗

"A couple of us went to PBL world and then came back and we led the training at Katherine Smith. We then went back and did a PBL workshop with the entire staff, which was the best thing for us. As a staff we all work to help get new teachers on board, whether they already know about project-based learning or not."—Kevin Smith, teacher at Katherine Smith Elementary, in an interview featured in "The Students and Parents of Project-Based Learning" podcast

THRIVE PUBLIC SCHOOLS 🔗

"I like that we [teachers] all get a chance to lead and practice with PBL. We're seen as both novices and experts." —Jaclyn Vasko, teacher at Thrive Public Schools, in an interview featured in the "Back to School: A Time to Thrive" podcast

Professional learning for incoming and current teachers at Thrive is usually three weeks before students come back to school. Teachers lead the sessions in a PBL format so that they get practice with PBL methods (such as tuning protocols).

ENVISION SCHOOLS 🔗

Envision Schools provides new teachers with training in August, three hours of on-site professional learning each week and ten days of additional professional learning throughout the year. All teachers at Envision also can use the Project Exchange, which is a site where teachers can share ideas and collaborate with one another on PBL.[49]

NEW TECH NETWORK SCHOOLS 🔗

According to New Tech Network annual outcomes, students enrolled in their project-based schools grow 61% more in higher order thinking skills between freshman and senior years than a comparison group or graduate high school at a rate nine percentage points higher than the national average.[50] Teachers at New Tech Network Schools have access to a PBL professional learning network of other educators to collaborate and connect with.

TEACHTHOUGHT PBL PD 🔗

"I want all teachers to have high-quality professional learning experiences and to understand how effective teaching practices that they already use can work within a PBL framework."—Drew Perkins, Director of TeachThought PD, in an interview featured in the "Ripple Effect: Creating Community Change" podcast

TeachThought offers teacher personalized PBL training & support. They also offer virtual coaching and office hours so teachers can get real-time support and feedback.

BUCK INSTITUTE FOR EDUCATION 🔗

BIE offers ongoing professional development, support, events (virtual and face-to-face) and resources for teachers implementing project-based learning. They also have a yearly conference, PBL World, focused on teacher and leader development in high quality project-based learning. BIE produces resources, including books and workbooks, for educators to support their PBL development.

A CALL TO ACTION

HOW CAN EDUCATORS GET STARTED AND WHAT ARE SOME RECOMMENDATIONS?

By 2020, the United States will need more than 400,000 new teachers each year to serve more than 60 million students.[51] Whether at a school, the district level, an organization or a university, consider what you can do to help develop a more project-ready teacher workforce.

TEACHER PREPARATION PROGRAMS

For teacher preparation programs, potential next steps toward the discussed design principles include:

» Adopt iNACOL teacher competencies and gold standard PBL guidelines from Buck Institute for Education (BIE)

» Incorporate more project-based work supported by personalized learning

» Shift to competency-based teaching & learning. Ask students to collect artifacts that demonstrate those competencies in a portfolio

» Give students opportunities to do Edcamps, online courses or other exploratory teacher-centered professional learning, and recognize these experiences on transcripts

» Establish partnerships with people and organizations outside of traditional school districts and provide pre-service teachers opportunities to work with them

SCHOOL LEADERS AND ADMINISTRATORS

Here are a few specific recommendations for school leaders and administrators who are working with developing project-based learning (PBL) teachers. In sum, teachers should know that administrators have their backs when developing PBL facilitation skills and that they will not be judged throughout the process.

» Allow teachers to have flexibility in the schedule to try PBL or create a school-wide shift in scheduling

» Organize conversations leading to community agreements on deeper learning and PBL outcomes

» Leverage PBL teacher leadership and support teachers who need more time to get there

» Support frequent student and teacher public presentations (exhibition nights) and publications (blogs, ebooks and portfolios)

» Celebrate teacher PBL successes and failures

» Model PBL for staff during meetings, trainings and events

TEACHERS AND SCHOOL-BASED EDUCATORS

At the heart of this work are the teachers in classrooms who are helping to prepare students for this project-based world. Educators can use the Teaching in a Project-Based World: A Quick Start Guide for Teachers to continue, or get started on their path to being more PBL prepared.

THE PATH FORWARD

We are supporters of strong teacher preparation and
professional development, as we believe preparing students
and working with our youth is some of the world's most
important work.

We have seen incredible examples from across the country
of people, universities and organizations that are doing this
work every day.

We are hopeful the next generation of teachers will be
prepared to work with students who will enter jobs we
cannot even yet envision. We know it is possible with the
right persistence and commitment to teacher preparation
and professional development.

We also know that in order to prepare our students for this
project-based world, we must first prepare ourselves.

*"Teaching is complex work that
people actually have to be taught
to do . . . [teachers] deserve to
learn how to do this work well
and the children that they teach
particularly deserve to have those
teachers taught."*

—Deborah Loewenberg Ball, Dean of the School of
Education at the University of Michigan, as quoted in the
article "What Core Skills Do Teachers Need To Be Effective?"

ENDNOTES

1. Partnership for 21st Century Learning. http://www.p21.org/
2. Irwin, Neil. "With 'Gigs' Instead of Jobs, Workers Bear New Burdens." New York Times. March 31, 2016. http://www.nytimes.com/2016/03/31/upshot/contractors-and-temps-accounted-for-all-of-the-growth-in-employment-in-the-last-decade.html?_r=1
3. Vander Ark, Tom. "How Project-Based Learning Prepares Youth for Freelance Nation." Getting Smart. January 12, 2016. http://gettingsmart.com/2016/01/how-project-based-learning-prepares-youth-for-freelance-nation/
4. Lathram, B., Lenz, B., and Vander Ark, T. "Preparing Students for a Project-Based World." Getting Smart. August 23, 2016. http://gettingsmart.com/publication/preparing-students-project-based-world/
5. Manyika, J., Lund, S., Bughin, J., Robinson, K., Mischke, J., and Mahajan, D. "Independent Work: Choice, Necessity and the Gig Economy." McKinsey Global Institute. October 2016. http://www.mckinsey.com/global-themes/employment-and-growth/Independent-work-Choice-necessity-and-the-gig-economy
6. Kamenetz, Anya. "3 Things That People Can Do in the Classroom that Robots Can't." NPR. August 2, 2016. http://www.npr.org/sections/ed/2016/08/02/479187579/3-things-people-can-do-in-the-classroom-that-robots-cant
7. Neuner, Jeremy. "40% of America's Workforce Will Be Freelancers by 2020." Quartz. March 20, 2013. http://qz.com/65279/40-of-americas-workforce-will-be-freelancers-by-2020/
8. Partnership for 21st Century Learning. "Framework for 21st Century Learning." http://www.p21.org/our-work/p21-framework
9. U.S. Department of Education. "Teacher Preparation: Reforming the Uncertain Profession." October 22, 2009. http://www.ed.gov/news/speeches/teacher-preparation-reforming-uncertain-profession
10. Crowe, Edward. "Getting Better at Teacher Preparation and State Accountability." Center for American Progress. January 5, 2012. https://www.americanprogress.org/issues/education/reports/2012/01/05/10941/getting-better-at-teacher-preparation-and-state-accountability/
11. Tell Me More. "New Report Finds Many Teachers Aren't Ready to Teach [radio transcript]." NPR. June 18, 2013. Retrieved from http://www.npr.org/templates/story/story.php?storyId=193104697
12. U.S. Department of Education. "Education Department Releases Final Teacher Preparation Regulations." October 12, 2016. http://www.ed.gov/news/press-releases/education-department-releases-final-teacher-preparation-regulations
13. Poiner, Jessica. "A New Model for Teacher Preparation." Thomas B. Fordham Institute. April 4, 2016. https://edexcellence.net/articles/a-new-model-for-teacher-preparation
14. Pace, Lillian and Worthen, Maria. "Laying the Foundation for Competency Education: A Policy Guide for the Next Generation Educator Workforce." International Association for K–12 Online Learning, KnowledgeWorks. October, 2014. http://www.inacol.org/resource/laying-the-foundation-for-competency-education-a-policy-guide-for-the-next-generation-educator-workforce/
15. Liebtag, Emily and Lathram, Bonnie. "Teaching Is a Project-Based Profession: 10 PBL Teacher Mindsets." Getting Smart. September 16, 2016. http://gettingsmart.com/2016/09/teaching-is-a-project-based-profession-10-pbl-teacher-mindsets/
16. Vander Ark, Tom. "Getting Smart Podcast | CASEL: Leading Advocate for Social Emotional Learning." Getting Smart. October 4, 2016. http://gettingsmart.com/2016/10/casel-leading-advocate-for-social-emotional-learning/
17. Strobel, Johannes and van Barneveld, Angela. "When Is PBL More Effective? A Meta-Synthesis of Meta-Analyses Comparing PBL to Conventional Classrooms." The Interdisciplinary Journal of Problem-Based Learning. Vol. 3(1). March 2009. http://docs.lib.purdue.edu/ijpbl/vol3/iss1/4/
18. BetterLesson. "PersonalizedPD Overview." 2016. http://betterlesson.com/personalized-pd/overview?from=pd_landing
19. Lathram, Bonnie et al. "Getting Smart Podcast | Project-Based Learning Connects Real World with Deep Impact." Getting Smart. February 22, 2016. http://gettingsmart.com/2016/02/project-based-learning-podcast/
20. Frost, D., Worthen, M., and Patrick, S. "Building Educator Capacity to Personalize Learning for Every Student." International Association for K–12 Online Learning. October 6, 2016. http://www.inacol.org/news/building-educator-capacity-to-personalize-learning-for-every-student/
21. Vander Ark, Tom. "Visiting Schools: Transformative Professional Learning." Getting Smart. May 31, 2016. http://gettingsmart.com/2016/05/transformative-professional-learning/
22. Eshleman, Ronda. "A True Team Effort: Multi-State Collaborative Professional Development." Virtual School Leadership Alliance. October 3, 2016. http://www.virtualschoolalliance.org/a-true-team-effort-multi-state-collaborative-professional-development/
23. Merz, Sandy. "Virtual Learning Communities and the Adjacent Possible." Center for Teaching Quality. May 30, 2016. http://www.teachingquality.org/content/blogs/sandy-merz/virtual-learning-communities-and-adjacent-possible
24. Liebtag, Emily. "International Student Teaching: A Multi-Case Study About the Intercultural Competence of Pre-Service Teachers [doctoral dissertation]." Online Archive of University of Virginia Scholarship. April 2015. Retrieved from http://libraprod.lib.virginia.edu/catalog/libra-oa:8502
25. National Council on Teacher Quality. "A Primer on Traditional Teacher Preparation." http://www.nctq.org/dmsView/Primer
26. Hill, Ronda. "Teachers—Designers and Architects of Meaningful Student Learning Experiences." Getting Smart. October 5, 2016. http://gettingsmart.com/2016/10/teachers-designers-and-architects-of-meaningful-student-learning-experiences/

27.   Vander Ark, Tom. "Diane Tavenner on the Summit Prep Teacher Development System." Getting Smart. June 5, 2011. http://gettingsmart.com/2011/06/diane-travenner-on-the-summit-prep-teacher-development-system/

28.   Summit Public Schools. "Our Approach." http://www.summitps.org/approach/professional-development

29.   NYC Teaching Fellows. https://www.nycteachingfellows.org/Default.asp

30.   Frost, D., Worthen, M., and Patrick, S. "Building Educator Capacity to Personalize Learning for Every Student." International Association for K–12 Online Learning. October 6, 2016. http://www.inacol.org/news/building-educator-capacity-to-personalize-learning-for-every-student/

31.   Western Governors University. "Competency-Based Approach." http://www.wgu.edu/why_WGU/competency_based_approach

32.   Buck Institute for Education. "Why Project Based Learning (PBL)?" https://www.bie.org/

33.   Horn, Michael B. and Staker, Heather. "The Rise of K–12 Blended Learning." InnoSight Institute. January 2011. http://www.christenseninstitute.org/wp-content/uploads/2013/04/The-rise-of-K-12-blended-learning.pdf

34.   Liebtag, Emily. "Passionate + Flexible = Key Traits of Great PBL Teachers." Getting Smart. October 7, 2016. http://gettingsmart.com/2016/10/passionate-and-flexible-key-traits-of-great-pbl-teachers/

35.   Gulamhussein, Allison. "Teaching the Teachers: Effective Professional Development in an Era of High Stakes Accountability." Center for Public Education. September 2013. http://www.centerforpubliceducation.org/Main-Menu/Staffingstudents/Teaching-the-Teachers-Effective-Professional-Development-in-an-Era-of-High-Stakes-Accountability/Teaching-the-Teachers-Full-Report.pdf

36.   National Research Council. "Preparing Teachers: Building Evidence for Sound Policy." National Academies Press. 2010. https://www.nap.edu/read/12882/chapter/5#59

37.   National Council on Teacher Quality. "Non-Traditional Teacher Prep (Formerly 'Alternative Certification')." 2014. http://www.nctq.org/teacherPrep/review2014/alternativeCertification/

38.   National Council for Accreditation of Teacher Education. "Standards." October 21, 2016.

39.   Clerkin, Kris and Simon, Yvonne. "College for America: Student-Centered, Competency-Based Education." Change magazine. November–December 2014. http://www.changemag.org/Archives/Back%20Issues/2014/November-December%202014/college_full.html

40.   Lewis, Kate. "Curry Expands, Innovates with Teacher Education Programs." Cavalier Daily. September 25, 2016. http://www.cavalierdaily.com/article/2016/09/curry-expands-innovates-with-teacher-education-programs

41.   Wise, Bob. "Next Generation Now: Transforming High Schools for Today's Students." Alliance for Excellent Education. October 4, 2016. http://all4ed.org/next-generation-now-transforming-high-schools-for-todays-students/

42.   Underwood, Tina. "Greenville Teachers Earn Project-Based Learning Credential." Furman University. September 28, 2016. https://news.furman.edu/2016/09/28/greenville-teachers-earn-project-based-learning-credential/

43.   Torregrossa, Kathleen A. and Gable, Robert K. "Supporting New Teachers: Aligning Professional Development to Educator Evaluation Data." K–12 Education, Paper 25. 2016. http://scholarsarchive.jwu.edu/cgi/viewcontent.cgi?article=1024&context=k12_ed

44.   National Research Council. "Preparing Teachers: Building Evidence for Sound Policy." National Academies Press. 2010. https://www.nap.edu/read/12882/chapter/5#59

45.   Berry, Barnett. "If Teachers Know Best About Professional Learning…Let's Follow Their Lead." Center for Teaching Quality. December 11, 2014. http://teachingquality.org/content/blogs/barnett-berry/if-teachers-know-best-about-professional-learning

46.   Croft, A., Coggshall, J.G., Dolan, M., Powers, E., and Killion, J. "Job-Embedded Professional Development: What It Is, Who Is Responsible, and How to Get It Done Well." National Comprehensive Center for Teacher Quality, Mid-Atlantic Comprehensive Center, National Staff Development Council. April 2010. https://learningforward.org/docs/pdf/jobembeddedpdbrief.pdf

47.   Gulamhussein, Allison. "Teaching the Teachers: Effective Professional Development in an Era of High Stakes Accountability." Center for Public Education. September 2013. http://www.centerforpubliceducation.org/Main-Menu/Staffingstudents/Teaching-the-Teachers-Effective-Professional-Development-in-an-Era-of-High-Stakes-Accountability/Teaching-the-Teachers-Full-Report.pdf

48.   Vander Ark, Tom. "Paradise Valley Schools Use Fiber and Video to Boost Teacher Collaboration." Getting Smart. March 15, 2016. http://gettingsmart.com/2016/03/paradise-valley-schools-use-fiber-video-boost-teacher-collaboration/

49.   Envision Education. "Our Approach." http://www.envisionschools.org/our-approach/

50.   New Tech Network. "Annual Outcomes Report." 2016. https://newtechnetwork.org/impact/#annualoutcomes

51.   Hussar, William J. and Bailey, Tabitha M. "Projections of Education Statistics to 2020." IES National Center for Education Statistics, U.S. Department of Education. September 2011. http://nces.ed.gov/pubs2011/2011026.pdf

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Getting Smart celebrates the collective organizations that are implementing deeper learning and PBL, and honors all of the educators who seek to better the lives of students through teaching and learning.

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