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All Results



The Power of Project Learning

Why new schools are choosing an old model to bring students into the 21st century.




By Wayne D'Orio | May 2009

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Here's a riddle: Imagine there is a learning technique proven effective through 100 years of use that is now enhanced by the power of today's technology. Imagine it can excite learners to continue their work well past the parameters of the school day. What is it, and would every school in the country do it?

It is project-based learning, and the answer is yes, and no. Project-based learning can be traced back to John Dewey and it has come and gone since the early 20th century. As a pedagogical method, it often meets resistance since it doesn't fit the skill-and-drill model that typically dominates education. But today, it is enjoying a comeback as cutting-edge schools demonstrate just how effectively it imparts the skills

Real World Projects

Flat Classrooms

Inspired by the message of Thomas Friedman's best-seller *The World Is Flat*, Georgia teacher Vicki Davis teamed up with Julie Lindsay, a teacher at Qatar Academy in Qatar, to create the [Flat Classroom Project](#). Using Web 2.0 tools, students in both locations discussed globalization, outsourcing, how the Web has changed the world, and how work-flow software can enable and enhance productivity, even with 9,000 miles between coworkers. The project was mentioned in *The World Is Flat 3.0*.

Monarch Migration

Each year, Terry Smith's fourth graders receive a package from the University of Kansas containing caterpillars that will eventually migrate to Mexico to become monarch butterflies. Smith's students raise the caterpillars, observing them and taking measurements of their changes, and then finally releasing them for their trip. They also create symbolic monarchs to send to Mexican students. In spring, when the real butterflies arrive in Mexico, the paper butterflies are sent back with messages that his students translate.

Yearbook DVD

Viera High School (FL) teacher Pete Episcopo has his seniors create a Blu-ray DVD to accompany the school's traditional yearbook. Top-notch equipment, storyboarding, interviewing

students need in today's workforce.

Why Project-Based Learning?

The big payoff for PBL, as its advocates refer to it, comes when engaged students learn not only the curricula and the concepts involved in a project, but also learn how to organize and present their thoughts, how to manage a complex project in a limited amount of time, and how to collaborate with members of a group. Sound familiar? That's because as an educated working adult you do these things all the time. For the next generation, these skills are only going to get more important.

While project-based learning can be decidedly low tech, the recent surge of interest has been driven by the increase in technology capabilities in public schools. Today's technology, from Web 2.0 tools to data collection devices, allow students to produce work akin to that of professionals, whether they are checking soil samples on the Hudson River or creating a Blu-ray DVD to accompany their high school's yearbook. Perhaps equally influential is Thomas Friedman's 2005 book, *The World Is Flat*, which crystallized the changes in today's global marketplace, from outsourcing to the digital revolution and made clear the necessity of changing the aims of American education for the 21st century.

"Friedman's book had an incredible impact," says John Mergendoller, executive director of the Buck Institute for Education in Novato, California, a nonprofit research organization promoting problem- and project-based learning.

"I think many people are starting to recognize the divide between the world of the classrooms and the world of work," says Jane Krauss, coauthor with Suzie Boss of *Reinventing Project-Based Learning: Your Field Guide to Real-World Projects in the Digital Age*.

While there are no official PBL statistics to track, the push toward project-based work in the last few years is obvious, most pronouncedly in the rash of schools built specifically around this model. Of these, New Technology High School in Napa, California, is the epicenter. Opened in 1996, this high school was created to help students gain the skills needed for the new economy. Three years later, the New Technology Foundation followed, its mission to help replicate Napa's school model throughout the country.

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fellow students, and working with a project deadline are all pluses for these students. They don't have to look far for a place to possibly ply their skills; Episcopo says with Walt Disney World nearby, he frequently uses Disney himself as a role model: "He wasn't the artist, but because he knew how all the processes worked, he was the brains behind it all."

There are now 40 New Tech schools from coast to coast, including eight in California and four each in Texas and Louisiana. One of its newest models is Tech Valley High School in Troy, New York. Its principal, Dan Liebert, has worked with project-based learning for more than 25 years and says the ability to create a school from scratch has big advantages. First, every student at Tech Valley has a computer. Second, the school's schedule is open enough to give students the time they need to delve deeply into projects.

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A similar movement began in San Diego in 2000 when business leaders and educators created High Tech High, featuring a project-based environment to combat low student engagement and poor academic achievement. Nine years later, High Tech High

encompasses eight charter schools, including two middle schools and an elementary school. Its philosophy is simple, according to Chief Operating Officer Ben Daley: have students use technology to research, produce, and present. High Tech High students regularly make movies, robots, and websites, and finish by presenting their work publicly to real audiences. A leading East Coast example is the Science Leadership Academy (SLA), a high school created in 2006 through a partnership between the School District of Philadelphia and the Franklin Institute, a 184-year-old group that promotes science and technology learning. Students here mix laboratory work and project-based learning with dual-enrollment programs at area universities and career development internships in laboratory and business settings.



Overcoming Opposition

even with all this momentum, pbl faces an uphill climb at most schools. Terry Smith, a fourth-grade teacher, sums up the typical roadblocks. "Teachers are in a real bind," he says, facing testing pressure, compartmentalized subjects, and a schedule that sends students onto the next subject before they can delve deeply into a topic. There's not "enough time to do anything."

Still, Smith chooses a different path for his fourth graders at Eugene Field Elementary in

Hannibal, Missouri. He favors projects that connect his poor, urban students with peers from across the globe, from playing chess with students in London to creating a digital “monster” via e-mail with classes across the country. With interest in PBL rising, Smith says, his fellow teachers “accept it more now.”

Liebert recognizes that it can be easier to start a new school like Tech Valley than to overhaul an existing school to create a PBL environment. “We have the privilege of being able to start from scratch,” he says. “We hired teachers with that expectation.”

Two other factors help Tech Valley’s mission. The school’s schedule allows for cross-curricular work to be done over a period of hours per day. “[In a traditional school], it’s difficult to work on a project. You can’t do it in 45 minutes,” explains Liebert.

Tech Valley’s second advantage is its technology. The ability to store all the parts of a project on a network has vastly reduced the clutter Liebert remembers from previous PBL attempts. Students can access their work from anywhere with an Internet connection.

Part of the opposition has less to do with technology and testing than it does changing people’s opinions of what school should be. “Some people are worried that if someone walks by a classroom, and it seems disorderly, it will look like students aren’t on task. It’s a problem for people to tolerate more movement and conversation,” author Jane Krauss says. “Chaos is a scary word that’s not really scary,” agrees Smith. “It means freedom.”

Some teachers are reluctant to commit to PBL because they fear it means scrapping a style they are comfortable with and starting over. “It’s hard to teach in a way we were never taught,” Krauss says.

While projects do require rigorous preparation, Smith says it doesn’t mean the end of lectures, small-group work, or other techniques used by most teachers. These techniques can be sprinkled into a three-week project when appropriate, and, in fact, can help assure teachers that their students are gaining knowledge.

“It’s not an additional burden of work, it’s a transition of work,” says David Ross, Buck Institute’s director of professional development. Instead of creating daily lessons, teachers do their planning before the launch of a project. Once the project starts, their job is to make sure students stay on track and cover the objectives.

The move to PBL doesn’t have to happen overnight, Ross notes. “We encourage small steps, projects that take weeks, not months.” PBL newbies can join existing projects or team up with others.

“There’s no denying the first time around takes time,” Ross says. “We hear this again and again from teachers.”

Getting Kids on Board

while younger teachers may seem more willing to try projects than 20-year veterans, some of the classroom’s biggest doubters are its youngest members.

Liebert says Tech Valley’s students, while enthusiastic about PBL, had to break patterns they followed in grades K-8. “Students are habituated in elementary and middle school to act alone. They think they have to solve problems by themselves. Our mantra is: Use your resources. They are not used to getting other students and adults to help them.”

Smith says the smartest children in his fourth-grade class buck the change the most. “Some kids will do the work all alone and say, ‘I’m done.’ I tell them, ‘No, you need to talk with your

classmates.’ I have to drag them kicking and screaming” into PBL collaboration, he adds.

SLA principal Chris Lehmann recognizes the pattern in his high school. “There are students who are good at the game of school. This was me in high school. Tell me the assignment and I was good to go. We have to give [students] permission to think, not teach them what to think.”

“It’s moving from guided inquiry to open inquiry,” says SLA math teacher Sunil Reddy. “It’s much more jazz than classical.”

Sometimes the results surprise both the teacher and learner, says Zachary Chase, an English teacher at SLA. To learn about the oral tradition associated with Homer’s *The Odyssey*, students were charged with finding a family story, getting a first-person recording of the story, and preserving it to pass onto their children. When one student found a bunch of letters from an uncle who had left his family to go to California during the Gold Rush, he used GarageBand to record himself reading the letters. He altered the voice to make it sound like that of an older man, Chase says. This project not only outstripped the teacher’s demands, but the success of the final project even surprised the student, he adds.

While teachers can certainly debate whether PBL would work in their classrooms, one aspect seems unassailable: the idea that when done properly, students receive much more knowledge than can be recorded on a bubble test.

“Our challenge will be to prove to outsiders that there is value-added evidence” to PBL, Liebert says. “Knowledge and core subjects are the base of what needs to be done, but [they are] not enough.” PBL is a “new gear” from the standards-based education that has dominated NCLB. “It’s not a different direction; it’s just the next level,” Liebert says.

What Makes a Great Project?

Creating a great classroom project is more complicated than taking a single lesson plan and stretching it out over several weeks.

“Have clear, strong instructional goals,” says Suzie Boss, coauthor of *Reinventing Project-Based Learning*. Speaking about the common habit of turning to PBL as a year-end “reward,” she says, “The idea is not to get our vegetables and then have our dessert. The core curricula needs to be the project itself.”

“The best questions have no clear answers,” says Tech Valley High School Principal Dan Liebert. “As opposed to getting the right answer, [we tell students] to come up with an answer they can defend.”

Gary Stager, the executive director at the Constructivist Consortium and an adjunct professor of education at Pepperdine, says the elements of a good project should include relevance for students, ample time to plan, change, and complete the project, and enough complexity to inspire intense work. There should also be a way to connect the project with people across the hall, on the other side of town, or across the world, an opportunity for students to collaborate with peers, international experts, and anybody in between, and a way for students to share their completed work.

“Projects are the learning that students remember,” says Stager, “long after the bell rings.”



**Leading a Project-Based School.
A Q&A with SLA school principal Chris Lehmann**

Scholastic Administrator spoke with Chris Lehmann, principal of the Philadelphia-based Science Leadership Academy, on PBL's many challenges—and its many rewards.

Q: What would you tell someone thinking of implementing PBL?

A: Ask yourself in the planning process, “What is the worst consequence of my best idea?” Sometimes in education we get it into our head that we’re going to do something new, and it’s going to be just awesome—forgetting that every idea has a dark side, every idea has problems. By anticipating problems and incorporating this into the planning process, you set yourself up to succeed better.

Q: What were some of the problems you anticipated?

A: One of the reasons desks-in-rows and textbook learning has lasted so long is that it’s the best way to keep order. When you walk by a classroom and you see all the kids at their desks with textbooks out in front of them, it looks the way we expect a classroom to look. PBL doesn’t always look like that. Kids are active: They’re moving, doing, arguing. And you have to be prepared for that.

Q: How can an administrator meet that challenge?

A: It’s important to establish systems and structures that allow teachers to collaborate. No matter what subject someone is teaching, there are common elements in planning any class.

At SLA we use Understanding by Design as our unit planning tool. We also have a common assessment rubric. Every major project the students do here is graded on the same five elements—design used, knowledge displayed, application of knowledge, presentation, and the process followed.

We also employ a school-wide “essential question” that changes with each grade. In ninth grade, it’s identity; in tenth, it’s systems; in eleventh, it’s change. This way there are common elements no matter what class a student is in, and that allows for a more unified day.

Q: We’re hearing more about PBL. Has its time come?

A: Project-based learning is a term that gets overused. A lot of folks talk about it, but there’s little actual PBL in practice. For me the litmus-test question is “At the end of a unit, what is the assessment tool you use to see what students have learned?” In a true PBL classroom,

student work is the ultimate assessment of learning. That's not to say that tests and quizzes don't play a role in a PBL classroom. The tests and quizzes are now interim assessments to make sure the students can do the harder job—which is to transfer the knowledge to the work they create. That is true project-based learning.

Q: What's the role of technology in PBL?

A: A very powerful one. Technology absolutely explodes the things students can do. One of the things that made PBL so difficult to do in the past was how long it took. A documentary film project in 1975—you were shooting it on film, cutting it yourself—it might have taken you months to make. Now we can do that in a fraction of that time.