November 2009

Little Kids. Big Learning.

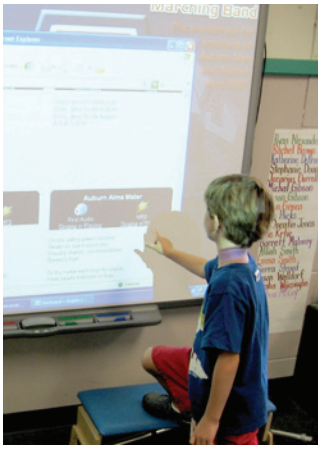
EDCompass newsletter

education.smarttech.com

Project-Based Learning with Early Learners and SMART Products

By Heather Ellwood

Young students *can* learn through projects. That's been Sandy Armstrong's experience. Throughout her 17 years teaching kindergarten, she's been an advocate and practitioner of project-based learning (PBL). Armstrong, a SMART Exemplary Educator who teaches at the Auburn Early Education Center in Auburn, Alabama, is often asked by teachers new to PBL how to embark on this education journey. She suggests that teachers start by using the same process they would follow when beginning a project with their students. Like many other PBL-focused teachers, Armstrong begins by breaking down any project into what's known as KWL: Start with what you *know*. Move on to what you *want* to know. Then ask what you've *learned*.



"PBL is the heart of a knowledge-building community. It's part of the day-to-day curriculum and the overall instruction and learning environment. It's focused and designed to sponsor deep understanding and intense intellectual engagement."

Sharon Friesen
President
Galileo Educational Network
Calgary, Alberta, Canada

What do we know?

Sharon Friesen is the president of the Galileo Educational Network, a nonprofit organization devoted to creating and researching 21st-century learning environments. A pioneer in inquiry-focused and project-based learning, Friesen has, along with other Galileo team members, worked with countless educators to create enriched classroom experiences for students. When discussing PBL, she believes it's often easier to begin by defining what project-based learning isn't. PBL is not the same as "doing projects," explains Friesen. Nor is it a loose set of activities around a theme or a task students take home, like a poster or diorama. And perhaps most importantly, it's not a supplement to the curriculum.

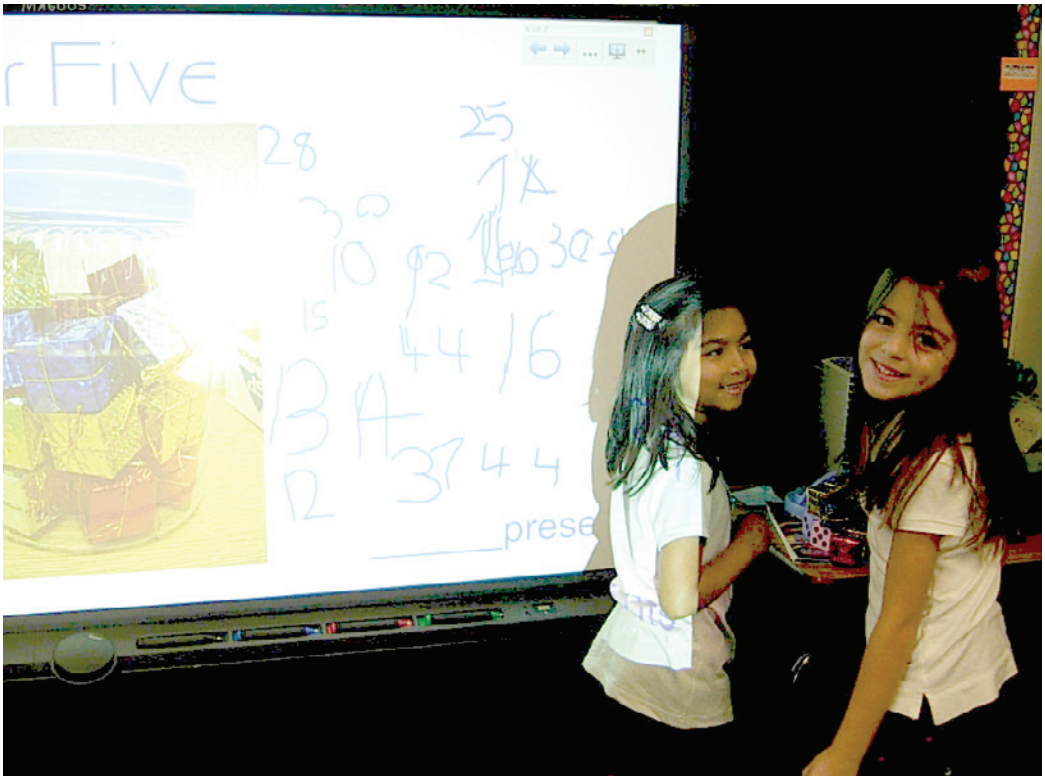
"PBL is the heart of a knowledge-building community. It's part of the day-to-day curriculum and the overall instruction and learning environment," says Friesen. "It's focused and designed to sponsor deep understanding and intense intellectual engagement." The teacher in a project-based learning environment, especially one with early learners, is a "skillful, proficient project manager."

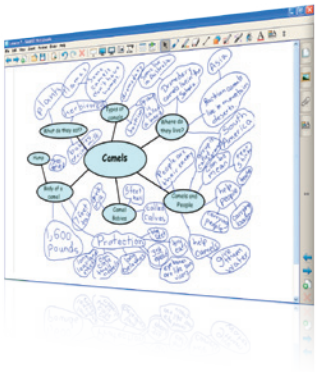
Detractors often assert that learners in kindergarten, first grade or second grade are too young and immature to take on the rigors of project-based learning. But when Armstrong presents at conferences on this topic, she advises teachers not to underestimate young students. "I say we should not put limits on what young learners can do. I truly believe project-based learning opens up the whole world for my students," explains Armstrong. "With technology and the right guidance, it's amazing how far they can go and how little they can make the world."

What do we want to know?

For teachers new to PBL, it can be hard to know where to begin. Brandy Magdos, who teaches first grade from a project-based perspective at P.H. Greene Elementary School in Webster, Texas, starts with the interests of her students. While she admits that project-based learning takes effort on her part, this SMART Exemplary Educator believes she is a more successful and conscientious teacher when she covers the curriculum through PBL.

"We cover all our content areas in whatever project we're working on. Doing that just works so much better with the way I believe young students think," says Magdos, who has spent most of her 13-year teaching career using projects as the foundation for her students' learning. She adds, "You're not





breaking your day into those hard and fast times. In the end, you actually end up covering so much more, but it's a tough concept for a lot of teachers. They find it difficult to break out of the notion that at 10:00 every morning they must do math."

Friesen believes that early learners are more than ready to take on PBL, as they quite naturally immerse themselves in learning through projects all the time. "This is the natural state of play," Friesen says. "Young children learn by investigation, by making things happen, by playing with ideas. This is a time to awaken curiosity and wonder."

Awakening that curiosity and wonder begins with the interests of the learners. It might be as simple as finding a praying mantis outside the classroom and bringing the specimen inside for a more thorough study. But no matter where a teacher starts, Armstrong advises taking things slowly – starting, for example, with an online search of the insect at the SMART Board™ interactive whiteboard. She advises that teachers just be ready to guide their students' little side trips and keep in mind that "it's not the product but the process that's important."

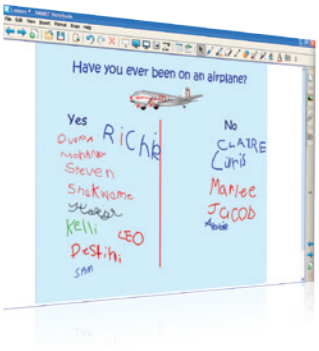
Right now, Magdos's class is immersed in a project that was sparked by some unusual weather – or at least that's the supposition of the first-grade students so far. After torrential rains left several areas of standing water in the schoolyard, the students of Greene Elementary noticed a plethora of frogs in their playground. Driven by their curiosity, Magdos's students clamored for the opportunity to investigate the phenomena. They began by creating a list of questions they wanted answered about their Greene playground frogs and off they went, searching for possibilities.

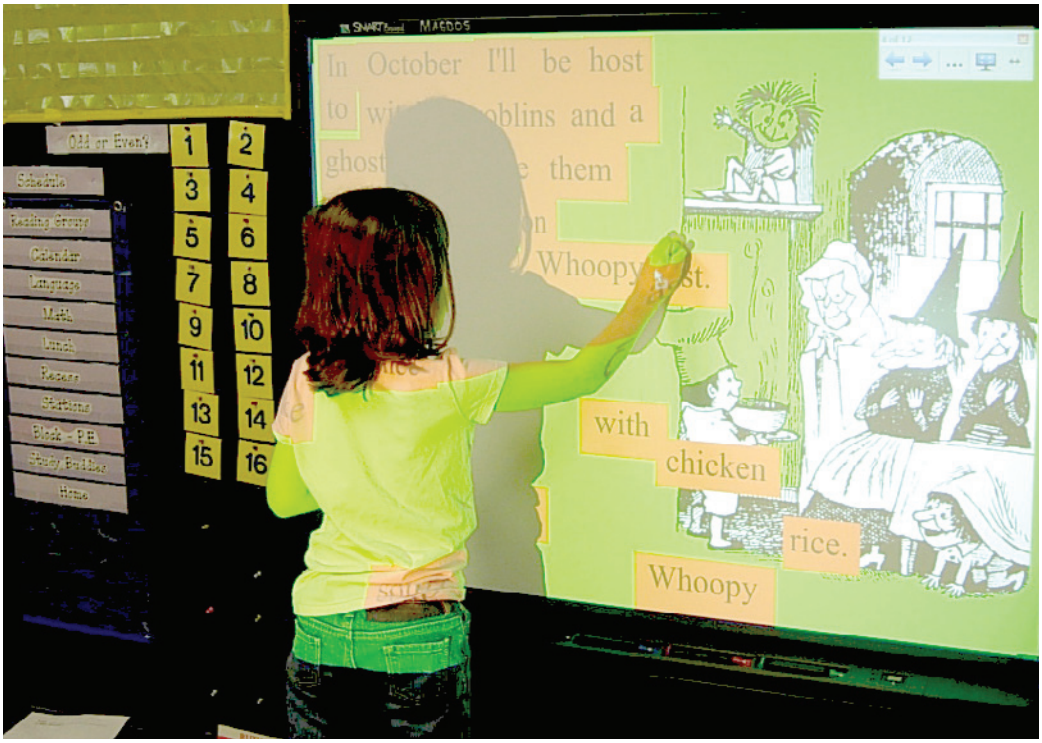
They've examined jars full of water and swimming tadpoles under the SMART Document Camera, conducted online research in groups and presented it on the SMART Board. They were excited to discover that their librarian's husband is an expert on frogs – he was invited to the classroom to answer their questions. And all because the mystery frogs made an appearance in their playground.

Magdos latches onto teachable moments such as this one and looks at every content area through the lens of that moment. "I look at the technology skills I have to teach. I also look at the science content, the language and reading content, and all the math skills," says Magdos. "I know there

"I know there are so many ways I can pull those content areas all together into one project, like we're doing with the frogs. That way we get so much accomplished and it's not disconnected. It's real. It's in the moment. And it makes sense to the students."

Brandy Magdos
First-Grade Teacher
P.H. Greene Elementary School
Webster, Texas





"I've always said if I had an empty classroom and a bit of funding, I would get a computer, a SMART Board and Internet access, and I'd be good to go. With those tools, I'd have the resources I needed right at my fingertips."

Sandy Armstrong
Kindergarten Teacher
Auburn Early Education Center
Auburn, Alabama

are so many ways I can pull those content areas all together into one project, like we're doing with the frogs. That way we get so much accomplished, and it's not disconnected. It's real. It's in the moment. And it makes sense to the students."

At its core, PBL is an inquiry approach to learning, says Friesen, which gives young learners an opportunity to connect ideas from a variety of disciplines and turn them into usable knowledge. At the very least, Magdos's students will learn a valuable and authentic lesson on the life cycle of a frog. But more significantly, they will begin to foster a deeper understanding of what happens when an ecosystem is altered. And Magdos believes that this learning engages the students more completely than a worksheet even could.

What about technology?

Armstrong believes it would be far more difficult for her to tackle project-based learning without classroom technology. Friesen feels similarly, maintaining that technology products, such as digital cameras and interactive whiteboards, should be used by even the youngest of learners. She says, "They need to have an interactive whiteboard so that they can go on virtual field trips, maneuver objects, run simulations, hook up digital microscopes and document cameras, show their own movies, project images and create remixes of images."

In Armstrong's kindergarten class, students as young as four have mastery over many of the items on Friesen's technology wish list. They also regularly use the SMART Response interactive response system, the SMART Table interactive learning center and SMART Bridgit™ conferencing software. "I've always said if I had an empty classroom and a bit of funding, I would get a computer, a SMART Board and Internet access, and I'd be good to go. With those tools, I'd have the resources I needed right at my fingertips," says Armstrong.

Magdos agrees – she feels that by seamlessly incorporating technology such as the SMART Board interactive whiteboard into all aspects of projects, the products become tools for learning, just like a paint brush, a can of paint and a blank sheet of paper. She relies on her SMART Document Camera nearly every day, and her students use the interactive whiteboard to record information and then organize it into charts and graphs. Magdos explains, "Using the SMART Board and SMART Notebook software, I have the tools I need to help my students get to higher-level thinking. By linking different parts of the information we've gathered, they start to make connections."

What have we learned?

According to Friesen, research done by the Galileo Educational Network indicates that the connections Magdos speaks of lead to improved achievement when students learn in environments that use PBL. Curriculum outcomes are met and exceeded because teachers and students are guided by a specific design – "at all times within project-based learning, the students know exactly where they are going, where they are and what they need to do to close the gap." Friesen adds, "We have also tracked student standardized achievement test scores. Students whose teachers design learning environments using a project-based inquiry approach repeatedly score well on Alberta's provincial achievement tests."

When kindergarten students at Auburn's Early Education Center write state standardized tests, many score into the third-, fourth- and fifth-grade levels in core areas, and fully 97 percent of the students achieve the test's benchmark. "No one can dispute what we are doing is working. We're making these kids real-life problem solvers. They are not just rote-memory, spit-this-fact-back-out learners. They are actually learning how to cope in life," says Armstrong.

Armstrong and Magdos agree – without PBL, they couldn't imagine their lives in the classroom. But they also agree about the commitment project-based learning takes from the teacher. Armstrong cautions, "This is not 'open your book to page 23 and answer the questions.' You have to be committed. But it's so much more fun. I couldn't imagine teaching in a traditional classroom. I just couldn't do that."

For those who are hesitant to try PBL, Armstrong and Magdos advise it's about starting small, using the technology products already in the classroom, seeking other resources and being open to the teachable moments that happen every day. Magdos says, "These young learners can do this stuff. Don't let fear stop you. If something doesn't work, start again. But just let them try." **EC**

Additional resources

For more examples of project-based learning, visit the Galileo Educational Network website. Specific projects that are posted include What Stories Do We Have to Tell?, Farming Roots in Castor, Alberta, and the Richness of Words project. The Galileo Network also has developed a membership-based website that helps teachers build and create student-centered and inquiry-focused projects, called IO (Intelligence Online).

Armstrong advises checking out Edutopia for advice, best practices and practical resources. A video of one of her kindergarten projects, about taking a flight to Brazil, lives on the Edutopia website.

Magdos's students' projects can be accessed through their class wiki.