

Right-Here, Right-Now: Real-Time Technology Staff Development

by Tammy Pandina Scot and Diane Harding

Your school has just received some new probeware. How should you introduce it to the staff? A quick plug at a faculty meeting? A show-and-tell demonstration by your technology super-teacher? An after-school workshop? There is an alternative—a real-time, project-based model that will get the whole school involved as a community of learners, students and teachers alike!

Rationale

Most of us have realized that technology integration is more than opening boxes of shiny, new toys. It is about helping teachers to know how to use technology to teach in powerful ways, harnessing the potential of 21st century tools for teaching and learning. This requires staff development that looks at content-specific applications of technology and new pedagogical applications for teaching and learning.

Helping teachers learn to integrate technology into curriculum is a critical factor in the successful implementation of technology in schools (Sivin-Kachala & Bialo, 2000). When teachers integrate technology into the curriculum, changes in teaching and learning can take place (Mann & Shafer, 1997; Page, 2002; Christmann, Gadgert, & Lucking, 1997; Ryan, 1991; Kelley & Ringstaff, 2002). Research suggests that teaching with technology facilitates pedagogical changes in teaching, to a more student-centered, constructivist approach (Tiene, Luft, 2002; Trilling & Hood, 1999; Penuel & Means, 1999; Silverstein et al., 2000; Statham & Torell, 1999).

Teachers need to know how to use technology before it will have any impact in the classrooms. A report examining the results of over 300 studies of technology use concluded that teacher training was the most

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significant factor influencing the effective use of educational technology to improve student achievement (Sivin-Kachala & Bialo, 2000). Many interesting, authentic learning opportunities are possible for students when their teachers embrace technology as a mindtool (Jonassen, 1995), but first, teachers need to develop new technological, pedagogical and content-specific knowledge. How can this learning be facilitated?

Problem

We are back to our original question, how should we introduce our new technology to the staff? Research shows that our most frequently used training techniques are ineffective. Workshops are the most commonly employed method for instructing teachers about technology. While many teachers have participated in this type of training, most report that it was too short in duration and too limited to be helpful (National Center for Education Statistics, 1999b; Ringstaff & Kelley, 1999). Research demonstrates that when staff development opportunities for teachers employ workshop methods only 10 to 15 percent of teachers actually use the new skill in their classrooms (Joyce & Showers, 1995). As Fullan and Stiegelbauer (1991) observed, “Nothing has promised so much and has been so frustratingly wasteful as the thousands of technology workshops and conferences that have led to no significant change in practice when the teachers returned to their classrooms.”

Our Solution: Real-time Staff Development

Staff development can be authentic and delivered in a way that teaches both students and teachers alike. We are experimenting with real-time staff development in which technology leaders spearhead school-wide, project-based learning with an inquiry approach. Introducing technology through a project that has a school-wide appeal insures community involvement and promotes the use of technology in an appealing, non-threatening way. It is especially useful as an introduction to new hardware and software while simultaneously modeling project-based learning. Whether you are introducing new hardware like digital microscopes, cameras or probeware, or new software such as a graphing program or a database program, this staff development model can be used to promote powerful uses of technology in your school.

The advantages to real-time staff development are many. What do classroom teachers have the least of? Time—time to learn new technology and new approaches to teaching. And, time to teach. Real-time inservice lets teachers learn and teach at the same time. They learn what they need to know about the newest technology tools and techniques where and when they need them. Right here, right now, right in their own school. When a technology liaison steps in to teach in tandem with classroom teachers, teachers and students both get real-time, in-sync teaching and learning. A technology liaison could be a technology resource teacher, an administrator or a classroom teacher with a special interest in or expertise with a “piece” of technology.

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Background

We work in a large elementary school in Albemarle County, Virginia. Our access to technology has been growing in recent years and our teachers are open-minded about its use in their curriculum but they are constantly looking for ideas and examples for how to incorporate technology into their lessons. Some teachers have taken after-school technology workshops but with many competing initiatives—literacy, a new math curriculum, and Standards of Learning, to name a few, most teachers feel very protective of their after-school and planning time. In order to provide the technology support that our staff needed, the school administration has allocated staffing funds for a part-time technology resource teacher for the past three years. The technology office is a small room connected to the media center, off of the main hallway. This is a central location, a significant factor in our story.

It began when the new gifted teacher asked if she could place a bearded-dragon lizard on the table outside of our door. After a few hours in his new home, this lizard began to draw crowds and attention. This attention has not waned since September. Classes notice him on their way to and from music, PE, and lunch. Students and parents comment on his habits and growth during drop-off and pick-up times. Teachers, administrators, even the cafeteria personnel, visit the lizard's cage, talking to him like he is a wise counsel in a whirling world of activity. Literally, every person in the school stops outside of the technology office for a minute or two each day. How can this attention be harnessed for learning? With a little creativity and ingenuity, the possibilities are endless!

The first project was to find a name for the lizard. A few "how-to make-a-database for voting" sessions were held with interested teachers and a very simple, easy-to-use database was created. The prototype was field tested with a class of kindergarteners, some minor adjustments made, and we were ready to roll. A cadre of 4th grade students was trained to be on call as database helpers, and teachers were given hard-copy voting instructions with a screen shot so they would know what to do. Voting began the day after election day, a nice current-events opportunity. We borrowed an iMac from the lab and set it up on the table next to the lizard's cage. Classes came by on their way to Music, PE or lunch and within 5 minutes the whole class was able to cast their votes. Most of the teachers voted and several parents as well! We made sure that everyone knew what type of program they were using and were able to pepper the conversations around the computer with database terminology—*fields*, *records*, and especially *save!* When the voting was complete, we used the power of spreadsheets to display the results. From that week on, our lizard was no longer just a reptile in the front hall. He was Zipper, the pet that belonged to us all. Several classes used the database results to create graphs and many classes used the results to get some "real-life" SOL math practice by analyzing data and reading charts. Two fourth grade teachers were inspired by the database software and have taught their children to

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create databases to survey their classmates. The projects range from, “What is your favorite sport?” to “What genre of books do you read most often?” One class is taking on a whole school voting project for a spring naming of the garden guardians, scarecrow-like figures in the children’s garden. The technology modeling inspired technology integration in several classrooms and increased the comfort-level throughout the school. What else could we do with this engaging lizard?

Several years ago, a parent bought an InTel digital microscope and a refurbished computer to donate to the school. That year, one teacher used this during a unit on cells and then it was put away into a science closet never to be used again until we set it up next to Zipper’s cage. Now students frequently bring their parents to the Intel Play microscope and explain in English or Spanish that the picture on the computer screen is a “close-up” of Zipper’s skin that he shed recently. Teachers stop by with their students to look at the collard greens that Zipper eats and and point to the cell walls, explaining how only plant cells have this structure. The microscope and computer are on a rolling cart so teachers can take them to their rooms, but most just use it where it is. Our lobby is becoming a community classroom.

We recently acquired probeware and were debating how to introduce it to the teachers. We quickly threw out the idea of a faculty meeting or a workshop and turned to Zipper for help. How about a school-wide science experiment that would introduce everyone to the digital probes and inspire some project-based inquiry?

We began with an appealing, easy to understand question. Is Zipper warm enough? How can we find out? We approached a third grade teacher, asking her class to design the experiment. Her enthusiastic response got this project rolling. We spent an hour team-teaching in her class modeling the process of scientific inquiry and using project-based learning techniques. The students focused the question to find out if Zipper’s cage stayed warm enough when the temperature in the building was turned down on nights and weekends. In groups of three and four, they used laptops to research the habitat of the bearded dragon lizard on the internet, interviewed the custodian to get the facts about the building temperature and presented their findings on the wall above Zipper’s cage for the whole school to discuss as they pass by. A fourth grade class has made a hypothesis voting database so that every student can record his or her hypothesis about the outcome of the experiment.

A 5th grade class has scripted the morning announcements and created posters to hang around the school so that everyone is aware of the experiment. This inquiry project is currently underway as of the writing of this article. The plan is for the temperature probe to be placed in the cage and hooked to a computer which records the temperature every half-hour. We expect that there will be a great deal of interest as the data grows before everyone’s eyes and are anticipating that this will inspire many

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other uses for probes in the classrooms and around the school. For example, during their unit on sound, the 5th graders may design experiments to monitor the noise in the cafeteria, in the media center, and in the classrooms. Second grade students may use the probes to record changes in temperature, barometric pressure and humidity during their weather unit. Fourth grade students may discover how warm the soil needs to be before certain types of seeds will germinate as they study plants.

Zipper, the lizard, has been quite a technology emissary for our school, but the use of real-time, project-based learning extends beyond the boundary of his glass cage, beyond the walls of the school, to embrace the community at large. According to the principal, Matthew Landahl, "At a big school like this, it's great to see every child engaged. I see this as a community-building event where students are having cross-grade-level discussions and teachers are being made aware of new technology opportunities. The excitement is contagious. It would be almost impossible not to be involved."

Technology can be a powerful tool for teaching and learning. Sometimes all it takes is a shared vision and the promise of shared support to venture in new directions. We plan to turn our entire lobby into an interactive, museum-like community learning space. Please write or make plans to visit us (contact information below).

Conclusion

While this staff development technique is new for us, we do have a wealth of experience in teaching teachers to use technology. The first rule is to make it authentic and make it engaging. Keep the risks down. The joy of learning new things is contagious. Be respectful of teacher's time; there is never enough of it. This is the power of this staff development model. It is part of the curriculum and it is happening in real-time. Learning for both students and staff is taking place during the regular teaching day. If you want to try this in your school, we offer the following suggestions:

- Find a community location.
- Pick a project that has whole-school appeal.
- Model technology use that is integrated with the curriculum and powerful pedagogy.
- Communicate well—electronic and hard copy communication.
- Advertise to the school community.
- Get several classes at various grade levels involved in different aspects of the project to increase buy-in.
- Read about project-based learning.
- Give classroom teachers a major role in directing the project.
- Let students generate the topics for inquiry and search for the knowledge they need.

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Next time a new box full of technology “toys” arrives at your school, don’t just unpack it, record the serial number, and then put it “out there” for check out. First, find a way to model its integration into the curriculum so that your whole school can experience the learning power that box contains.

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About the Authors

Tammy Pandina Scot is a doctoral candidate at the University of Virginia and a fellow at the Center for Technology and Teacher Education. She also works as a technology resource teacher for the Albemarle County Public Schools. Technology integration, staff development, and educational research are her areas of focus. She can be reached at tscot@virginia.edu.

Diane Harding is a Curriculum Technology Integration Partner at Paul H. Cale Elementary School in Albemarle County, VA. She taught high school English for thirteen years, was an elementary writing specialist for five years before becoming a technology resource teacher. She can be reached at dharding@albemarle.org.

