THE FIRST ADVICE I HAVE FOR SCHOOL LEADERS with regard to technology is to be passionate about it or don’t do it. As a school leader, you must lead by example. In other words, do not ask anyone to do something you would not do. I have seen school administrators (in other districts of course) stress the importance of professional development for technology integration without committing to their own skill development. As much as possible, a school leader must display the commitment and behavior that he or she wants the people around them to embrace.

In addition, leaders must not only review the literature but also conduct their own on-site research to stay ahead of the curve and fine-tune the process by which they address technology. Technology is no longer optional. Schools must keep pace with the technology-infused world around them. Finally, all technology leaders must align their priorities to ensure that technology is driven by curricular needs and integrated to support learning.

With the help of all stakeholders, my school district in southern New Jersey created a comprehensive technology integration professional development plan called the Linwood Integration of Technology Training for Teachers (LIT³). Using LIT³, teachers benchmark their learning with a self-survey, and we gauge their progress along a five-stage continuum adapted from the Apple Classrooms of Tomorrow model: entry, adoption, adaptation, appropriation, and invention. According to this plan, teachers move learning from core “survival” skills to integrating technology into the curriculum to becoming mentors and facilitators for other teachers. For example, teachers are required to use e-mail for memos and correspondence, administrative grading software, and word-processing in a variety of ways—stage one and two tasks. By stage three, teachers start

**PREVIEW**

School administrators must provide leadership for the integration of technology that goes beyond wiring and connectivity.

Curricular needs and increased student engagement and productivity must drive technology use in the classroom.

New products should be tested and evaluated before being purchased and put in the classroom.

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integrating technology to change the classroom environment from passive learning to engaged, cooperative, project-based authentic learning. With the help of technology, teachers become facilitators instead of lecturers. Students become active learners rather than passive listeners.

We looked at before and after shots of classrooms during several of our own case studies. The first was a case study during the 2002 school year (Rudnesky 2004). We found that as more technology was integrated in the classroom, students were able to go beyond teacher’s expectations. With open-ended assignments, they were able to use resources, including primary documents, from around the world to complete assignments that improved their critical thinking skills.

Because teachers became confident in their new ability, they were empowered to go outside the confines of the classroom. Students were able to visit teachers’ Web pages to review assignments and see examples of other students’ work. The school years that followed have indicated similar transformation and success.

**Baby Steps**

One important conclusion from my doctoral research indicated that a prelude to technology acquisition is a comprehensive, continual professional development plan that considers adult learning styles. Barriers to such professional development must be eradicated and one way to eliminate barriers is to implement flexible training methods that accommodate everyone (Rudnesky, 2004). In the course of my research, I found that the most effective form of technology-integration professional development is one-to-one peer mentoring. These relationships bridged the technology gap four times faster than other forms of professional development. A peer mentoring strand of professional development can offer support and collegiality and eliminate barriers to learning for teachers at all levels of technological proficiency. I found that when teachers set goals and achieve success they can build on that success. They learn to do a little well rather than a lot poorly.

One of our mentoring teams uses an analogy from the movie, *What About Bob*. In the movie, Richard Dreyfuss’s character, Dr. Marvin, is trying to cure Bob, a compulsive man played by Bill Murray. The doctor’s advice is to take baby steps to overcome fears. Using this theory, small successes lead to larger accomplishments. The larger accomplishments engage the teachers in creative risks that are supported and calculated.

One question I always get when I present a workshop or facilitate training is, “How do you get teachers who have been teaching for a long time to see the advantages of technology integration?” I found that the trick is to put yourself in their place, to see what they see. In one recent peer mentoring group, both the mentor and mentee had more than 25 years of teaching experience. The mentee’s reflective log indicated that in group training, she was apprehensive about asking questions for fear her colleagues would consider her inadequate. The one-to-one relationship gave her the confidence to ask questions and try new strategies. Mentors can anticipate such barriers and find training methods that help teachers understand technology integration. Another teacher who had been teaching for 27 years concluded in her reflective journal, “My time with my mentor was always very well spent. In the many years of my teaching, this was the most productive professional experience I ever had.”
GUIDELINES FOR PRINCIPALS AND TECHNOLOGY LEADERS

- Raise the bar for yourself before you raise it for anyone else.
- Do not ask anyone to do something you would not do.
- Include all stakeholders.
- Develop a comprehensive technology professional development plan that surveys the participants from time to time.
- Differentiate training methodology to include peer mentoring.
- Develop a tool that can benchmark teachers and document progress.
- Consider adult learning theory for professional development.
- Review the literature and conduct your own research.
- Align technology standards with all curricular areas. Let the other areas drive the technology.
- Let technology naturally differentiate instruction.
- Engage students through project-based assessment.
- Allow the classroom environment to change from one of passive listening to one of engagement.

Let the Curriculum Drive Technology
This generation of students has grown up with technology. Likewise, new teachers have grown up with a technological backdrop as well. They expect it. But just because they expect it, that doesn’t mean that they will use it well or that administrators should give it to them. Technology should only be advanced to engage students and teachers in learning that is meaningful. At Belhaven, some teachers had a misconception that they were “using technology” rather than integrating technology. But stage three on our technology professional development continuum—adaptation—specifically states that the goal of technology integration is “increased students’ productivity and engagement.”

When properly implemented and driven by the curriculum, technology integration is seamless and creates a student-centered, engaged classroom. Technology, however, should never take precedence over the core curriculum: it should enhance what educators want the students to learn. The objectives for learning should remain the same. My experience and research data, which have been triangulated through student projects, observation, teacher interviews, and reflective journals, indicate that proper integration of technology in the classroom offers a great opportunity for differentiation. By using project-based assignments and assessments that allow students to choose from a variety of multimedia options, teachers can more readily appeal to students’ interests and differentiate by ability level. I have witnessed many students reach higher achievement levels because they could work in a way that appealed to their interests and suited their learning preferences.

Technology standards should be intertwined in all curricular areas rather than taught in isolation. This will encourage students to concentrate on the curriculum rather than on the hardware and software and will give them access to information that was previously not possible. This belief was put into practice at Belhaven when the computer teacher left the technology laboratory to plan and team teach with all teachers. Rather than just teach technology skills in isolation, she teaches technology when it is a requirement of some other curricular area.

Gauge Effectiveness
One problem that school leaders face is how to determine the effectiveness of new technology in teaching and learning. Technology changes quickly. In some cases educators need to predict the outcomes on their students. Because Belhaven already has a comprehensive technology integration professional development process in place, we have the capability to evaluate the newest trends. We are very careful not to use new technology just because “we can.”

One example of Belhaven’s success in integrating and evaluating technology is the proliferation of interactive whiteboards in the school. Through a series of grants, Belhaven purchased its first interactive whiteboard four years ago. Today there are 20. A 21st-century version of the classroom has evolved with a student-centered vision and a well-thought-out plan. The goal of having whiteboards was to get students engaged, not just to change the delivery method of the teacher. The curricular objectives were the same with or without technology. We still wanted to raise the bar for everyone in the classroom by prompting critical thinking and open-ended questioning. When we integrated technology with all this in mind, we were able to take the students to levels that were otherwise unobtainable.
When I visited Belhaven’s first multimedia classroom during a Civil War lesson, my doubts were removed. The classroom contained laptop computers, a sound system, an interactive whiteboard, an LCD projector, and an exemplary teacher. The teacher used a combination of DVD clips, video streaming, primary documents, and Internet sites to accomplish the objectives of the lesson.

Part of the lesson went like this: The teacher began by asking a simple open-ended question, Who was the most revered general in American history and why? The students had a number of answers. Finally, the teacher displayed an almost life-sized picture of General Robert E. Lee. Students gave arguments of why this was not true while defending their own choices.

The teacher then went to a bookmarked DVD clip of the third day of the Battle of Gettysburg in which General Lee is seen riding his horse through myriad dead bodies and fallen soldiers. The teacher paused the clip and circled the general in a highlighted color. “Who is this?” he asked. Because the general is played by Martin Sheen, a student said, “The guy from West Wing” (the television series). At that point, every student was looking at the screen. And although the student was somewhat correct, the teacher interrupted that it was General Robert E. Lee.

The teachers resumed playing the DVD clip, which showed every confederate soldier cheering for the general although they had been fighting for three days. The clip lasted for only two minutes but made the point effectively because a line of open-ended questions continued. The teacher read an excerpt from a book and switched to a primary document on the Internet, moving from medium to medium effortlessly.

The real engagement with the interactive whiteboard took place a week later when the students presented their projects to the rest of the class. A few weeks earlier each student had picked a topic and a culmination project. They conducted research using a wireless laptop laboratory. This method differentiated interest and ability level, and it allowed students to raise the bar and move to the right on the grading rubric.

Students who normally would not answer in class used the interactive whiteboard to present their projects. They were brought to a new level of critical thinking and public speaking. They used the whiteboard as a tool that enabled them to display their work proudly to their peers. (For more project-based research ideas, visit www.edutopia.org.)

When the curriculum demands it, technology allows students to engage in hands-on assignments and demonstrate their learning in various media.

Conclusion

When we look at new technology for Belhaven, we try to determine the extent of student engagement and higher level thinking. Last spring, we investigated a couple of interesting uses for technology in the classroom. One was networking graphing calculators in math class. The other was interactive remotes. In both instances, we brainstormed with teachers, connected curricula, and tested the product.

Then we test the concepts with students in the rooms. Most vendors will allow educators to borrow and test their products, because when the products are successful, it is to the vendor’s advantage. In some instances, Belhaven has become a site visitation center for other schools. Remember, teachers are the experts in the classroom, and if they let the curriculum drive their technology program, it will lead to enhanced student learning and success. PL

References


Author’s note: More information about the Apple Classrooms of Tomorrow model is available at www.apple.com/education/k12/leadershipplace. Additional project-based resources can be found at www.edutopia.org. LIT3 was honored by the New Jersey School Boards Association with the 20th Annual School Leader Award in 2005.