# What is Technology Integration and Where Does it Happen?

*~ By Adam Garry*

In March I was checking out Alan November's Web site when I came across his Summer Conference "Aligning Technology Resources." I had the pleasure of seeing Alan November twice a couple of years back, and I knew that his conference would really make me think about the future of technology integration. I wanted to try to answer the questions, "What is technology integration and where does it happen?" So I made the trek to Rhode Island for the conference. The three days that I spent there confirmed a lot for me, but it also opened my eyes to many new things. Ask a group of teachers anywhere in the world, "What is technology integration?" and you will receive many different answers. How can so many people in the same profession have such different views on the same topic? This disparity exists because each person is in a different phase of the game and few understand how to play. I am going to attempt to pull all my thoughts from the last three days together and tell you what I think Technology Integration is and where it happens.

Technology integration is about learning. It is about teaching students to use data and information to think critically, solve problems, and evaluate. It is doing things that would otherwise be impossible, and collaborating with people all over the world. We need to move from automating - putting the technology on top of what we already do - into a world where we are informating (using technology to do things that we wouldn't be able to do), which will lead to empowerment (November, 2001).

I know, I know - we have heard all of this before, yet nothing is changing. For change to occur, there must be a shift of control from the teachers to the students. Staff development needs to improve, the parents and community need to be part of the learning environment. Online learning should be implemented. We must communicate differently and teach students how to think critically about information. Control is a hard thing for teachers to give up. Let's face it - we are still teaching as if we live in the Industrial Age (departmentalized). A shift of control from the teacher to the students will allow the students to share in the learning that occurs in the room. The teacher doesn't always have to know how to use a piece of software, but must know the right questions to ask so that the student thinks critically about the information that is being manipulated with the software. The goal is to empower students so that they can apply what they are learning in authentic situations. A shift of control will lead to a more student-centered environment.

In a workshop on Professional Development, Alan November sketched out the pieces that should be part of any plan. According to November, the goal of professional development is for the teacher to become the most astute observer of the impact technology has on students. He cited two very important studies (Motorola and Disney) that helped him reach some of his conclusions.

Motorola built a million-dollar training facility and brought in great people to train its employees, who were very pleased with their training and always gave high evaluations. November asked a chief executive of Motorola a very important question, "Did the professional development increase job productivity?" The answer was "No." Motorola discovered that it conducted its professional development without follow-up, and therefore the employees had no reason to apply the knowledge and no one to help them. When Disney conducted its study, the company found that professional development would fail if it were not consistent with the vision and goals of the business. In the case of education, it should be aligned with the school's goals and standards.

Following are the pieces for technology staff development that November outlined:

Before you conduct training you should always validate the fears of the participants. The research states that participants come to a workshop looking for confirmation of their fears.

- It should be Socratic and involve the community.
- It should never be called technology. Call it "primary source material training" and include technology.
- Follow-up is the key. Two kinds of follow-up can exist. First, the school principal should visit the teacher's room 30, 60, or 90 days after the training (teacher decides). The principal is looking for integration with questions provided by the trainer to help guide the discussion. Second, the trainer should

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follow up to answer questions, help plan, model, or support.

- ❖ The training must be aligned with the school goals and the standards.
- ❖ The training must have measurable goals.
- ❖ Each teacher should bring two students to the training. The students interact at the computer and the teacher makes observations (questions are given beforehand). Throughout the process, the trainer shifts control over to the students so that they can train the teachers. This will empower the students and build classroom support.
- ❖ Teachers must have a framework from which they can make observations. The trainer will set up the questions by making his or her own observations on the topic in which they are training.
- ❖ Debrief and talk about notes with the teachers.
- ❖ When they leave the room, the participants are asked what they need from the trainer in order to feel comfortable. Some questions that you can ask participants before they attend training are:
- ❖ Where do students struggle in your curriculum?
- ❖ What is your favorite unit?
- ❖ What are your worst fears and best hopes about the topic?

These questions will help the trainer make the instruction more valuable to the participants.

Also apparent is that we must include parents in the process. Schools need to be perceived as a welcoming place and should include parents in each student's learning. Houston ISD is one of the first in the country to create educational portals for teachers, students, and parents. Just like My Yahoo! and other portals, the teachers, students, and parents will be able to customize their Web page/portals to include the information about the educational process. This is a giant step toward keeping parents informed of their child's education. Massachusetts is also doing this for all of its teachers, students and parents.

Online learning will lead to "anytime, anywhere" learning for teachers and students. There are many companies offering this for professional development, classes and degrees. With the shift to online learning, teachers and students must use a new set of communication skills. They will need to know how to communicate with people who are not in the same room with them. Online learning may be the only technology that can help to revolutionize education.

Lastly, and most importantly, we must teach students to think critically about information. They should be able to use and manipulate multiple forms of data and information to solve complex and authentic problems. Students should be able to think critically about Web sites and the content presented, as well as make sound judgments about the information. Is it true? Is the source reliable? Is there conflicting information? Does it make sense? How does it tie into the big picture?

So what does all this mean? Technology integration happens in a student-centered classroom where learning is most important. We must focus on the learning and let the technology provide opportunities to improve the learning. When control is shifted to the students and teachers begin to research and learn with the students and ask the right questions, we will begin to see a major change in education.

Some of the best examples of true technology integration are teachers who use PDAs and probes to solve authentic problems. Another example is teachers who involve the community and work with students to solve genuine problems within the community.

Many things will contribute to creating a learning environment that is conducive to critical thinking and other higher-level tasks. We must start with the way we train people and shift the control to the students. After all, aren't students the real reason that we have schools?

Think Outside the Box:

- ❖ Eliminate technology committees that talk about hardware and software and create committees that talk about curriculum and integration.
- ❖ Bring students to all training.
- ❖ Don't conduct any training with the word technology in the title.
- ❖ Provide follow-up for everything you do.
- ❖ Don't expect teachers to be experts on software, but rather ask them to become researchers with the students and guide with the right questions.
- ❖ Allow teachers to videotape themselves for their observation and turn in the tape (ten-minute length) to be viewed by some of their peers. ▲ ▼