

of change. Disagreement and resistance can make a positive contribution to the implementation of technology in our schools. Maurer (1996), in a book entitled *Beyond the Wall of Resistance*, reminds us,

Often those who resist have something important to tell us. People resist for what they feel are good reasons. They may see alternatives we never dreamed of. They may understand problems about the minutiae of implementation that we never see from our lofty perch atop Mount Olympus. (p. 49)

Herein lies the power of including the thoughts of all and the danger of heading off with a small group of like-minded teachers committed to technology. In my experience with new programs and innovation, rarely has a small, select group of faculty had a significant influence on the resisters and saboteurs. To the contrary, the results have created further resistance and resentment between the in-group and the out-group.

CHAPTER SEVEN

Teacher Evaluation and the Use of Technology

IMPORTANCE OF ASSESSING TEACHER PERFORMANCE

The tasks and responsibilities of a school principal, though often daunting, certainly include the assurance that "excellence in teaching" is the centerpiece of the district's agenda. Supervision of the instructional process is the "quality control" element of student learning, and teacher evaluation is a vital component of that quality control, as well as an important element of effective leadership by the principal. When a teacher is performing in a marginally effective manner and the principal does not confront the teacher with the problem, then the principal is also performing in a marginal manner (Smith, 1998).

We currently appraise the performance of teachers for the following reasons, among others:

1. Appraisal fosters the self-development of each teacher.
2. Appraisal helps to identify a variety of tasks that the teacher is capable of performing.

3. Appraisal helps to identify staff development needs.
4. Appraisal helps to improve performance.
5. Appraisal helps to determine the placement, transfer, or promotion of a teacher.
6. Appraisal helps to determine if a teacher should be retained in the district. (Rebore, 1998, p. 221)

EVALUATING TECHNOLOGY USE IN THE CLASSROOM

I do not argue with our commitment to the appropriate use of effective teaching appraisal practices. What seems to be missing, however, is the inclusion of the same rigorous attention to evaluating technology use in the classroom. In addition, many educators mistakenly believe that effective technology integration correlates with how much hardware and software is available in the classroom and/or our labs. I will go even further and suggest that even the "use" of available technology by all students does not necessarily translate to effective technology integration. *It's really about how the teacher uses technology to support clearly defined learning objectives.*

Consider this: When we visit a classroom to observe a language arts lesson, do we measure effective teaching and learning solely by the number of language arts textbooks available and whether or not teachers and students are using them? Visiting an algebra lesson, are we satisfied with the teacher's performance if students are using the adopted text along with the new calculators purchased by the district? Certainly not. Why? *Curriculum standards and learning objectives* are in place for our language arts and math curriculums, and both teachers and principals are aware of them. I am not convinced that we evaluate the effective use of technology with the same rigorous kind of standards and learning objectives. Technology that does not advance student learning has little value in the classroom, and I suggest even "gets in the way" of other types of learning. Technology linked to standards and agreed-on learning objectives can help all students achieve at high levels.

SO WHAT DO I LOOK FOR?

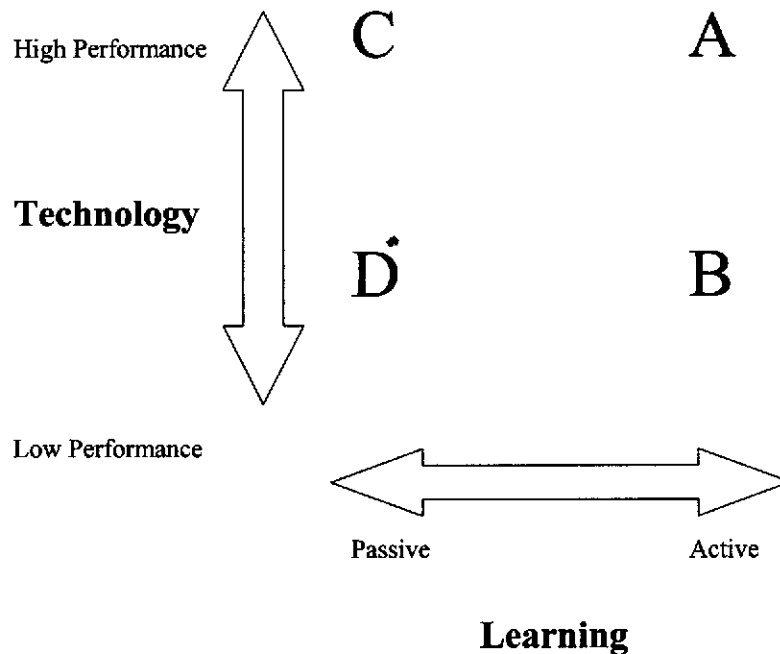
If technology integration is not about hardware and software or even necessarily the use of it, then what is it and what do I look for in a classroom observation? First of all, let's look at the research and utilize some resources already available to us. No need to reinvent the wheel.

Most of us are familiar with the regional educational laboratories, the national development system administered by the Office of Educational Research and Development, U.S. Department of Education. These regional educational laboratories provide communities with the latest information on learning. Recently, one of the regional labs examined how various educational technologies can increase teacher effectiveness and improve student achievement.

The North Central Regional Educational Laboratory (NCREL) recently pulled together the latest information on how students learn best and compiled it in a guide to those technologies that are most useful in promoting student learning. The publication, *Plugging In: Choosing and Using Educational Technology* (North Central Regional Educational Laboratory, 1995), introduces what we know about effective learning and effective technology, and puts it together in a planning framework for educational leaders and policymakers. I strongly recommend this resource for your individual planning at your school site. I will be referring to parts of this document as we discuss things to look for (and things you don't want to see) in the classroom as you focus on the integration of technology.

MEANINGFUL, ENGAGED LEARNING

In recent years, researchers have formed a strong consensus on the importance of engaged learning in schools and classrooms. This consensus, together with a recognition of the changing needs of 21st-century students, has stimulated the development of specific indicators that can act as a guide in applying a set of standards and learning objectives to the implementation of technology. The indicators used by NCREL were developed by Jones, Valdez, Nowakowski, and Rasmussen (1995), who suggest that technology

Figure 7.1. NCREL learning and technology framework.

SOURCE: Credit is given for this model to NCREL and Jones, Valdez, Nowakowski, and Rasmussen (1995).

effectiveness can be defined as the intersection of two continuums shown in Figure 7.1.

When the two continuums are combined, four learning and technology patterns result:

- A. Engaged learning and high technology performance
- B. Engaged learning and low technology performance
- C. Passive learning and high technology performance
- D. Passive learning and low technology performance

The authors developed a set of learning indicators to help planners concentrate on moving instruction from passive learning to active learning. In addition, they developed a set of technology indicators to assist with keeping technology learning at a high

performance level. They strongly encourage schools to focus their vision for using technology primarily in Categories A and B.

Let's look at how we might use the *learning indicators* and *technology indicators* to effectively evaluate and assess the use of technology in the classroom. Using NCREL's indicators of engaged learning, we can create a framework for designing effective evaluation tools for classroom observation of technology implementation. The real value of this procedure is the movement away from passive and low technology performance levels and toward more active and high technology performance levels. For example, NCREL's model includes "Teacher Roles" as one of the indicators for engaged learning.

Certainly, effective classroom instruction is dependent on exactly how the teacher interacts with students. As simplistic as this sounds, it draws attention to the importance of expecting teachers to be *facilitators, guides, co-learners, and co-investigators* in the instructional process. The following section displays NCREL's indicator of "Teacher Roles" intersecting with high performance technology indicators.

Teacher Roles for Engaged Learning

Facilitator. The teacher provides rich environments, experiences, and activities for learning by incorporating opportunities for collaborative work, problem solving, authentic tasks, and shared knowledge and responsibility.

Guide. In a collaborative classroom, the teacher must act as a guide—a complex and varied role that incorporates mediation, modeling, and coaching. When mediating student learning, the teacher frequently adjusts the level of information and support based on students' needs and helps students to link new information with prior knowledge, refine their problem-solving strategies, and learn how to learn.

Co-Learner and Co-Investigator. Teachers and students participate in investigations with practicing professionals. Using this model, students explore new frontiers and become producers of knowledge in knowledge-building communities. With the help of technology, students may become the teachers and teachers become the learners.

DESIGNING A GUIDE FOR CLASSROOM OBSERVATION AND TEACHER EVALUATION

Using the learning/technology indicators above, let's compile a list of questions that can serve as a guide or framework in assessing the teacher's role with technology in the classroom.

Facilitator

1. Is the teacher interacting with students using computers or other technology in the room? Or are students working without collaboration from the teacher or other students?
2. As students work with technology, is the teacher supervising, monitoring, and facilitating students' project work, posing questions, and suggesting responses as appropriate?

Guide

1. Does the teacher simply give directions on how to complete assignments with technology? Or is there evidence of further interaction focusing on helping students to refine their problem-solving strategies and connecting new information to prior knowledge?
2. Is the teacher "leading from the front" or "guiding from the side"?

Co-Learner and Co-Investigator

1. Is the teacher's expertise and instructional delivery dominating? Or are the students' individual interests and expertise blended with those of the teacher, allowing for teacher learning along with students?
2. Is there evidence of the involvement of other professionals, such as technology coordinators, media specialists, and librarians encouraging knowledge-building communities?

Connecting what we already know about effective learning (engagement, activity, collaboration) with the implementation and use of technology in the classroom (or lab) assists the instructional leader (principal) in managing and sustaining effective technology curricula in our schools. Most important, connecting learning and technology in this way helps us monitor the appropriate use of technology to improve student learning. We must move away from technology skills taught in isolation and closer to purposive integration of technology across the entire curriculum and learning environment.

TEACHER ROLES, OK—BUT WHAT ABOUT STUDENT ROLES?

We now have an idea of what the teacher's role might look like when observing technology use in the classroom, but let's take a look at one more of NCREL's learning indicators—student roles for engaged learning—and add to our questions serving as a framework for instructional supervision of teaching and learning in the classroom (Jones et al., 1995).

Student Roles for Engaged Learning

Explorer. Students discover concepts, connections, and skills by interacting with the physical world, materials, technology, and other people. Such discovery-oriented exploration provides students with opportunities to make decisions while figuring out the components/attributes of events, objects, people, and concepts.

Cognitive Apprentice. Students become cognitive apprentices when they observe, apply, and refine through practice the thinking processes used by real-world practitioners. In this model, students reflect on their thinking processes in diverse situations and across a range of tasks, and they articulate the common elements of their experiences.

Producers of Knowledge. Students generate products for themselves and their community that synthesize and integrate knowledge

and skills. For example, students use technology applications to make presentations both at school and in the community. Through the use of technology, students are increasingly able to make significant contributions to the world's knowledge.

ADDING TO OUR QUESTIONS GUIDING TECHNOLOGY SUPERVISION

As we did with the teacher roles for engaged learning, we'll generate a few questions focusing on student roles for effecting learning. As before, we are attempting to connect what we already know about effective learning (engagement, activity, collaboration) with classroom use of technology.

Explorer

1. Are students using technology (computers, etc.) to increase their knowledge of historical events, world news, and other people outside the classroom? Or are they using technology primarily for drill and practice activities or the remediation of existing skills and knowledge?
2. Is there evidence of students' use of e-mail and the Internet to communicate with experts or researchers outside the classroom?

Cognitive Apprentice

3. Are students exposed, through the use of technology, to appropriate experts who provide models and feedback from outside the classroom? Or does modeling and feedback only come from the teacher?
4. Are students involved in programs outside of the school such as school-to-careers activities with area businesses and community service agencies?

Producers of Knowledge

5. Is there evidence, in or out of the classroom, of computer-produced projects such as research reports, speeches, and other written compositions?
6. Is there evidence, in and out of the classroom, of pictures, graphs, or other graphic products produced by technology (computer, video recorder, digital camera)?

CLASSROOM OBSERVATION AND TEACHER EVALUATION: WHAT'S THE BIG DEAL?

Paraphrasing Emerson, Pepi and Scheurman (1996) state, "computer technology is in the saddle and it is riding us" (p. 229). The principal charged with instructional leadership and monitoring the delivery of instruction must not get caught up in letting technology use in the classroom exist with no connection to what we know about teaching and learning. Technology must coexist with constructivist principles of learning (see Chapter 5).

Too often, teachers use the computer as a tool for drill and practice, or worse, "like television in the hands of many lazy instructors as an instrument for classroom management" (Pepi & Scheurman, 1996, p. 231). Hours spent on the Internet may result in a good amount of *incidental learning*, but the activity is often used by teachers as a way of keeping students on task, rather than as a tool to construct knowledge.

The evaluation process provides an opportunity to stimulate student achievement, and also to improve teacher performance. Principals need first to understand how technology supports the curriculum and learning objectives, and second, to help teachers determine effective strategies for connecting technology with the most recent research and development findings on learning. *We must be certain that technology wears the saddle and we are riding it!*