

The Technology Game:

Perspectives and Reflections on School-based Technology Training Specialist Support (Part II)

by Sally Bryan

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The process by which technology is integrated into classroom curriculum throughout Fairfax County Public Schools is being played in a manner similar to a board game. Each day teachers encounter circumstances that either encourage or discourage the integration of technology into lesson plans and curriculum objectives. When teachers draw favorable circumstances, their integrated plans are implemented, their students find appropriate on-line resources, or create new knowledge and communicate in unique ways. Teachers are encouraged to use technology in future lessons. When those same teachers draw unfavorable circumstances, they might not be aware of appropriate software available to them, might feel too insecure to implement new programs, their schedules might be interrupted, or their computers might freeze. Their momentum is stopped, their projects are delayed or destroyed, and their desire to play *The Technology Game* dissolves.

While *The Technology Game* is being played, the future of our students hangs in the balance. To successfully complete this game, teachers must recognize the importance of technology integration and appreciate new teaching strategies that support the changing literacy needs of students. The final goal of the technology game is to create a learning environment in which student achievement is accelerated through the integration of technology in classroom curriculum. This learning environment must provide the tools of knowledge acquisition and communication for the 21st century and must develop the skills required to utilize these tools.

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Technology Game, continued

Attending team planning meetings and analyzing the results of my teacher survey gave me important insights upon which to base future collaboration and activities. By February, teachers were signing up to use the computer lab based upon pre-arranged lessons. I used a lesson plan form that indicated the responsibility of each teacher. I knew what I was responsible for and I knew that students would arrive with needed background information. I became so busy modeling with collaborating teachers that I didn't have time to worry about the teachers who were not available.

Attendance at team meetings by the school-based technology training specialist (hereafter, SBTS) was a critical activity for fostering technology integration. I had fewer interruptions and fewer requests for instant information or resources. It allowed me to plan "just-in-time" modeling. Teachers were happy to accept my help. Now we were playing the game together. Hindsight is always clear, but I should have seen that it was my responsibility to present myself to teams, to more aggressively offer suggestions, support and encouragement to increase effective technology integration.

Primary Players

During the first half of the year, I visited primary classrooms to model use of computers and introduce CDs to be used in centers. In January the four kindergarten/first grade multiage classes began coming to the Lab on a weekly schedule. Teachers tell me the topic of study and I support them with related CD programs. Students sit in front of the Smartboard for instruction before working in pairs on the computers. The "Veterans" (first graders) help the "Rookies" (kindergartners) learn to manipulate the mouse or drag objects on the screen. Realizing that teachers need timely introductions to appropriate CD programs, I frequently introduce a new software program and then invite student exploration. I try to create a one page "resource sheet" for teachers to take to their classroom with the CDs. Thus students have been introduced to the CDs and know what behavior is expected at computer centers. Teachers know what concept developments are available on each CD and observe activities to be continued in the classroom. During these lessons I see good cooperation between partners and excitement about hands-on learning experiences. In this manner we have enjoyed the newly purchased *Learn About Science* programs and the *Wanderoos*.

Workshops: Creating Our Own Game Plan

As part of my Technology Training Plan I requested a day of training workshops in March. Our Principal allowed me to hire three substitutes to cover classes. Assistants could cover classes for additional teachers who wished to attend the workshops. Specialists were invited to any workshops. At the team planning meetings, I suggested the plan and asked teachers what topics they would like covered. The 4/5/6 team said they wanted *Inspiration* training and spreadsheet applications. The 2/3 team wanted *Kidspiration* and math resources. The Primary Team wanted primary websites and resources and *Kidspiration* applications. Each workshop was scheduled for two hours.

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Teachers would have instruction and time for hands-on activities in their requested topics. Thus, the 4/5/6 teachers left with spreadsheet schedules and seating charts, spreadsheets with formulas for recording test results and *Inspiration* templates. The 2/3 team reviewed our collection of math software and looked at math websites. They experimented with *Kidspiration* and saw the value of turning webs into story-writing outlines. The primary team searched the web for appropriate websites to collect in a special primary Intranet page, and each made a *Kidspiration* template to add to a Primary templates folder on the server. I consider the workshops a great success.

What is the Score?

April walked into the Lab today saying, "I can't wait to see what I will learn today!" You would never guess that she was arriving for the after-school math club, our remedial Standards of Learning math program.

My involvement in the after-school math club has been a remarkable journey. Because I thought Betty, our math resource teacher, had math resources well established, I had not ventured into this curriculum area. When I volunteered to help with the after-school math club, a whole new world opened to each of us. I had focused on computers as a vast resource of information waiting to be tapped. I had not explored computers as a tool to zero in on precisely the concept development that a particular child might need. When Betsy and I began to plan our after-school lessons, I began to see this valuable use for computers. Betsy planned deliberately to instruct students in precisely those concepts which they would need for standards testing. She wanted to reinforce what they knew and introduce that which they had not yet grasped. Thus, she was very particular about what software I should use with students. Time was short and must be used to the students' best advantage. We collaborated closely with Betsy telling me what concepts were needed and with me searching our resources to support those needs. One night I gave Betsy a list of promising websites to investigate. I was surprised when she returned with a site to use in our next class. Betsy didn't have time to surf the net, but she was willing to look at the sites I had suggested. We achieved a new level of collaboration and student support. I think we were both surprised at how quickly students grasped the concepts and how excited they became. Alternating between Betsy's direct instruction and test taking skill practice and my interactive computer software with teacher intervention as needed, students worked for two hours after school each week. I believe that we have achieved a situation in which students are engaged and eager to learn. They are developing self-confidence as they gain mastery of math concepts. It is my hope that they will test far better than was previously expected because of our collaboration and ability to present students with appropriate resources.

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On February 6, Betsy sent this note to a friend:

First day of after-school math (new program) went well. Sally Bryan is working with me now, for the first time, and it's great being able to send the kids to the lab for math work. I simply haven't found a way to incorporate using technology in the math work I do. I know it can be done, but I never feel I have the time to explore it, and so it sits. Classroom teachers don't use technology support in math, either.

Sally, because she's a proactive kind of a person, had the vision to see that a way "in" with math/technology was to support the after-school math program, and it's just exactly right. It's the perfect setting for giving kids tech time in math, with two important benefits—they get to practice on math skills, plus it reduces the size of the group so that I can work with fewer kids at a time.

Our Math Club experience has taught me that when students are given math activities that are challenging, they are excited and energetic in their responses. They are encouraged when scores add up and validate their belief that they are "getting it." Students are highly motivated to learn using interactive CD activities. If the work is too hard, they want teacher intervention to show them what they have not understood. Once the concept is explained, the students are eager to proceed. When the activities become too easy, they lose interest and want to move on to other activities. Thus, it seems transparent when concepts are understood and when concepts need further explanation or practice. The ability to observe these attitudes only happens when the teacher is closely supervising activities and evaluating student behavior. Students should not be left independently in front of the computer. Rather, the teacher should observe at some distance so that she can intervene only as needed. The teacher needs to know when the student is constructively involved and when the student needs support. It is the interaction between the student, the teacher and the computer programs that creates a powerful learning environment.

I was surprised at 8:45am on Monday morning when Maureen brought her fourth grade math class to the computer lab "to do math." Could they please use the programs we had introduced in the after-school math club, they begged. I explained that they were welcome but that CDs would have to be installed. I gave a brief introduction to students who were not in the math club and explained how I expected partners to collaborate to solve the challenges. For the next half-hour students were happily engaged in "*Place Value and Grouping*" activities. The programs were so popular that Maureen now returns each week to support student learning with appropriate Math CDs. Suddenly there is the perception that the computer lab is a good place "to do math." And it is! Of course other classes have heard about the programs and have scheduled math computer times, too. Activities have expanded beyond the CDs as everyone realizes how easily computers support math.

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Jenny, a second grade teacher, wanted to create a money counting lesson. I imported coin pictures into KidPix and showed her how to copy and paste the coins to represent various amounts of money. She asked students to draw cards out of a bag showing different amounts of money and then to illustrate the amount of money in *KidPix*. The students loved her game. Sonia's class took the game a step further and found a way to show change from a transaction. A recent note from Sonia states:

Hi Sally,

Last Friday's math was so great I'm going to try to make this a weekly thing. I signed up for Thursday this week. We're working on making change. It would be great if there were two levels of activities. Making change from amounts up to \$5.00 and making change from \$1.00 or less. Do you have anything like that?

A Winning Teacher

Sandra, an LD Resource Teacher, came to me recently with a wonderful idea. She asked her third grade students to become "Renovation Reporters." They would carry clipboards and pencils while investigating the construction site. They would conduct interviews of people affected by our school renovation. Although these students were reluctant writers, they were excited by this project. She wanted to know if I would like to be part of this project and if I had any ideas. Yes, yes, yes I exclaimed! We could teach the students to take digital pictures and import pictures into their writing. They could use AlphaSmarts to chronicle the renovation progress. We could start a Timeline along the hallway and add pictures and interviews as work progressed. She asked me to join her class in the LD trailer and discuss the project with the students. They were full of questions and excited by their prospects. Could I take their picture in front of their favorite hole? Could they interview the foreman and find out the names of the heavy equipment being used? Where did I think the playground would be built? Could they collect questions to ask people? What a great project! Sonia will guide these students to use critical thinking skills, gain practice in their reading and writing skills, and will use available technology to support their learning.

Playing the Game Through Project-Based Learning

When Lemon Road celebrates Artist & Authors Day this June, the Computer Lab will be a busy part of the student display. Many classes have completed projects in which students were asked to research a topic, gather notes and select information to use in their final product. The students used Internet and CD resources as well as library books. They determined what they thought was pertinent information. They worked in collaborative teams to create *Hyperstudio* stacks, *Power Point* slideshows or *Publisher* newsletters. They used the tools of the 21st century to evaluate resources and to communicate their findings. Teachers acted as mentors supporting student efforts and individual skill development but allowed students to develop their own critical

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thinking skills. The SBTS became a guide helping everyone access new resources and using various media to express student learning. I believe that such a learning environment prepares students for their future in the Age of Information.

What If We Lose the Game?

There are many rewards for success and many consequences for failure. Teachers lose the game if they receive so many poor card draws that they give up and make no further attempt to integrate technology into the curriculum. Such teachers fall back on traditional methods of teaching, isolated by four walls and defined by knowledge outlined in textbooks and lectures. These teachers will not prepare students for their future in a world of electronic media. Failure is largely invisible in the present, but will become all too visible in the future. If we lose the game, our school will continue to prepare students as it always has. Students will listen to lectures, will absorb that body of knowledge that teachers deem important, will read the text and will be tested on a prescribed context. Students may perform well on Standards of Learning and standardized tests. After all, standardized tests do test that small body of knowledge which students have been told to study. But what of their future needs? Will they have the critical thinking skills needed to select relevant information from the overwhelming flood of information that threatens to drown them? Will they know how to evaluate or utilize information that is not spoon-fed to them? Is this when we realize that we have lost the game?

Winning the Game

Teachers win the game when they see technology as a tool to advance learning, a tool that provides alternative ways of learning and self-expression, a tool that offers greatly expanded resources for student investigation. They realize that they are no longer responsible for all student learning. Their job is no longer to lecture. Rather, they become guides supporting students as they interact with resources and learn to independently refine their knowledge. The teacher's role is more challenging because there is a greater opportunity to differentiate instruction. The teacher needs great skill to evaluate the progress of each student and to intervene in such a way as to guide the student toward appropriate skill development.

The student rewards are visible when the game has been won. Students become excited about their learning opportunities. They are given new ways to see and comprehend knowledge. They are energized by their ability to create their own learning. They take the technology and travel along paths to success that only they can determine.

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Drawing Discouraging Cards

There are some stumbling blocks that the SBTS can't easily overcome. Many SBTS support two schools and are only halftime at each. They can't overcome the fact that their presence is only halftime, their ability to intervene is halftime, and their attention to a school is only halftime. Many schools do not have the hardware and software systems that Lemon Road has acquired. Many SBTS do not have the leadership support that LRES enjoys. The SBTS who is dealing with too many discouraging circumstances is at a great disadvantage.

Findings: Discovering the rules of *The Technology Game*

Finding #1: Before teachers can use technology consistently in their lesson plans and curriculum objectives, they need assurance of prerequisite conditions. These conditions include:

- Leadership support and encouragement
- Adequate accessibility to hardware and software
- Timely troubleshooting help
- "Just-in-time" training
- Support for risk taking and lesson planning

Implication: The school system must provide teachers with these elements of support before they are likely to consistently incorporate technology into classroom curriculum.

Finding #2: Having technology available does not insure appropriate use. The power of school technology can only be realized when teachers are trained and motivated to use the available equipment. Teachers are motivated to use technology, even if it requires a change in teaching strategies, if they are aware of the importance of technology to their students. Modeling by SBTS offers opportunities for teachers to see these advantages.

- Student directed learning
- Teacher as guide
- Availability of increased resources
- Practice selecting, evaluating and utilizing information
- Small group collaboration
- Practice exercises for concept development
- Ability to differentiate services
- Accommodation of learning styles
- Multimedia ways to know
- Student interest and enthusiasm
- Fun

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Implication: Training in the use of technology must be accompanied by recognition of the importance of technology use to our students. The SBTS should model lessons in which teachers observe new strategies of teaching and observe student-centered learning activities.

Finding #3: Teachers are more willing to attend training if they anticipate immediate classroom use of applications. When workshops are planned around teacher requests and curriculum needs, they are well received and are more likely to be used by teachers in subsequent lessons.

Implication: The SBTS should plan “just in time” training that is based upon teacher requests and that has immediate classroom application for teachers.

Finding #4: The SBTS is in a unique position to help teachers integrate technology into their classroom curriculum. The SBTS can design activities that will be responsive to teacher requests. The SBTS can be proactive and initiate activities to train and motivate teachers as they struggle to integrate technology. The SBTS can encourage teachers to take risks in using technology. Collaboration between two experts, initiated by “SBTS,” is a critical way that SBTS can support teachers.

Implication: The SBTS must initiate activities that support teachers. These activities might include:

- Attend team-planning meetings and discuss curriculum to be covered
- Suggest programs and activities that support curriculum
- Collaborate between experts to design lesson plans and projects
- Model use of programs so that teachers see new strategies of teaching and observe student interest in learning.
- Plan workshops during school hours
- Ask teachers to suggest topics and programs to explore
- Support risk taking
- Prepare software reviews to accompany classroom CDs
- Create a flexible, responsive schedule
- Make teachers aware of available resources

A Winning Strategy

The power of our technology can only be accessed through teacher training and desire to integrate. Computers are merely tools to be harnessed and used to create a powerful new learning environment. Nothing beneficial can be achieved until teachers are trained and motivated to use the equipment placed in their rooms. This is where the role of SBTS becomes critical. The SBTS is responsible for teacher training and support and must initiate and encourage collaboration. It is through collaboration that

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the SBTS can enhance the chances of winning *The Technology Game* in classroom curriculum.

Lemon Road has been slowly but surely winning *The Technology Game*. Because I expected to move too quickly and because I allowed discouraging situations to distract me, I didn't see how truly successful we have become. Teachers at Lemon Road want to support student learning by integrating technology. Teachers who are confident and comfortable with technology are taking risks and creating wonderful projects on their own. The teachers who need support know I am ready and willing to help. Collaboration and planning are the keys to winning this game. So, to answer the question: *Are we winning The Technology Game?* Yes! I believe that Lemon Road is winning *The Technology Game*! Is your school winning *The Technology Game* too?

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