

The Growing Technology Gap Between Schools and Students

Findings from the
BellSouth Foundation
Power to Teach Program

The Big Difference





We must address the growing demand among students for technologically-charged learning experiences.

“Allow us to explore the Internet a little more hands-on. There’s an entire other world on the Internet blocked from us. Let us explore more, give us a different web assignment each week instead of going straight to skill.”

6th grader

Introduction



In 2000, the BellSouth Foundation launched the Power to Teach program — and set out to explore ways to help create a critical mass of teachers who could capably incorporate technology into everyday classroom experiences. Our vision was a new cadre of educators who could integrate technology so seamlessly that a student or a classroom observer would be hard-pressed to say where technology began or ended in the learning experience.

The Foundation undertook this challenge by rooting the design of the Power to Teach program in a wealth of research about teacher professional development models and best practices. This program sought to discover how the professional development experiences of teachers could best be applied to the technology use of students for engaged learning.

The results we achieved, based on our program goals, were encouraging. By the program's end in 2002, nearly three-quarters (71%) of elementary teachers and three-quarters (75%) of middle and high school teachers reported high levels of technology integration in their classes. In other words, the majority of teachers who participated in our program felt that they had made significant strides in incorporating technology into the learning experience.



The lightning bolt of realization for us, however, occurred upon deeper examination of the data — in particular the **vast differences between student and teacher perceptions** of instructional technology practices. While teachers feel they are making dramatic leaps in their ability to harness the power of technology to create stimulating, engaging and challenging learning experiences for students, the students themselves have seen few changes in classroom instruction. What's more, students revealed that they were hungry for more opportunities to use technology in challenging and meaningful ways in the learning environment.

Measuring comparative perceptions was not part of our original plan, but the realizations we've uncovered are too powerful to ignore. Clearly, we as a nation must begin to address the growing demand among students for technologically-charged learning experiences. We also must address the widening gap in perception between students and teachers as to how well technology is being incorporated into the classroom — and into learning experiences outside school walls. We invite you to review the learnings we share in this report, question them and us, and consider what they mean for the future of education in our country.



The Best Laid Plans: About The Power to Teach Program

In 1999, the BellSouth Foundation developed BellSouth edu.pwr³, a multi-year, \$10 million program intended to increase the capacity of school leaders, teachers and students to fully harness the power of technology for learning. BellSouth edu.pwr³ consists of three components:

Power to Lead — leadership development seminars and grants to support school superintendents with technology deployment strategies (\$2 million);
Power to Teach — teacher professional development grants for school districts (\$6 million); and
Power to Learn — the expansion of learning for students in exemplary high-tech schools (\$2 million).

Power to Teach, the second of the three edu.pwr³ components, was designed to help school districts accelerate the impact of technology on student learning by supporting new instructional actions in the classroom. The BellSouth Foundation's goals for Power to Teach were to:

- shift the focus away from hardware and software accumulation and onto the teaching and learning process,
- focus on high-quality learning experiences for teachers to reinforce positive attitudes and thinking about potential classroom use of technology, and
- accelerate the pace of change for teachers and find ways to sustain their transformation.

“...It is fun to look up stuff on the Internet. It really helps us gather info for projects. I like the idea of having a computer to look up stuff.”

4th grader

Power to Teach grants were designed to give teachers high-quality, practical learning experiences that in turn gave them the power to incorporate technology into their classroom environments in meaningful and sustainable ways. The grants also were intended to accelerate professional development strategies in districts with comprehensive technology plans and long-term commitments to helping teachers develop technology integration skills.

Work on the Power to Teach program began in 2000 and continued through 2002 — and its range was vast. In some districts a small number of teachers received intensive training to become lead trainers on a long-term basis in their school campuses. In other districts, a large number of teachers were trained across two grade levels to extend curriculum development training around technology integration.

As one of the primary means of data collection, the BellSouth Foundation created and used the first web-based version of “Taking a Good Look at Instructional Technology” (TAGLIT).

Other sources of data came from site visits, online post-program surveys of teachers and district contacts, conference experiences and direct communication between grantees and Foundation staff, and financial reports.

Results of the data from the Power to Teach program are extremely encouraging. Both teachers and students showed significant gains in basic technology skills. Schools and school districts increased their expenditures in technology and professional development, especially in low-income, high-minority schools. And finally, the percent of elementary schools in which 50% or more teachers were integrating technology into the classroom increased from 41% in 2000 (beginning of the program) to 71% in 2002. For middle and high school teachers, the numbers increased from 49% in 2000 to 75% in 2002.

However, the biggest insight from Power to Teach was completely unexpected...

“Technology can open doors for students.”

12th grader



Uncovering The Big “A-Ha!”



The Power to Teach program provided a ground-breaking opportunity to hear about the use of technology in learning from three key school stakeholders: students, teachers and school leaders.



Taken together, these voices contributed powerful new information that provides a surprising picture of the vast differences between teachers’ and students’ perceptions of the impact of technology in the learning environment. Although originally meant as mechanisms to measure the Foundation’s Power to Teach program goals, the findings on the use of technology to support and enhance classroom instruction indicate an emerging trend in our schools — one that is the focus of this Power to Teach Report.







Whose Perception Determines Reality?

It's probably no surprise that students are outpacing teachers in their familiarity with and use of technology — after all, today's students are part of a generation for whom technology use is almost as common as breathing. However, the difference in perceptions between students and teachers about technology in the classroom is somewhat surprising, and can lead to very different classroom realities. The BellSouth Foundation believes that this divergence is preliminary evidence of a trend that may prove to be a core issue for schools in the future.

Using quantitative and qualitative data, the BellSouth Foundation examined eight different items in which teachers reported on their inclinations to use technology for more student-centered instruction practices. These included:

- cooperative learning,
- the use of higher-level thinking skills,
- interactions with the world outside of school,
- interdisciplinary activities,

- activities that students find engaging,
- providing extra help,
- coaching rather than lecturing, and
- achievement measures based on products, progress and effort.

Students were then asked to report on their perceptions of technology use for these same instruction practices. Responses to these eight items from the final study schools uncovered a significant gap between the teachers' perceptions of the impact of technology in the classroom and the students' perceptions. What's more, disparity between the student and teacher groups grew significantly between 2000 and 2002. One of the largest disparities appeared with the item asking about the level of student interest and engagement in classroom activities.

While the increase in teachers' competencies and perceptions of their work is good news for schools in the southeast, **the widening gap between the perceptions of what teachers and students believe is or is not happening in the classroom is a startling red flag.**



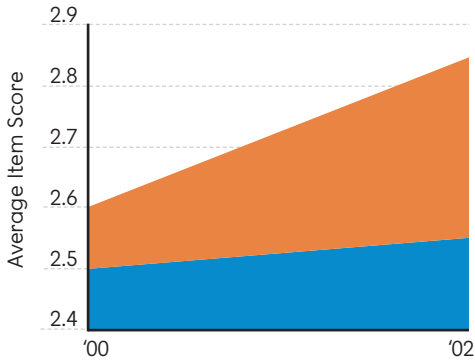
The Average 15 Year-Old

Has never "dialed" a phone.

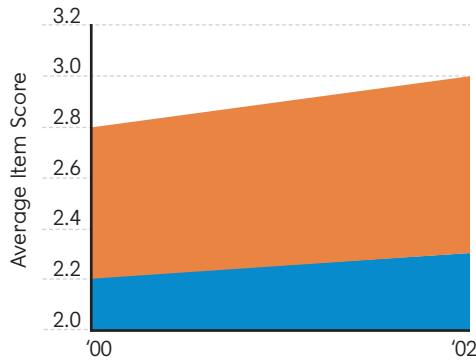
Purchases movie tickets via the Internet rather than standing in lines.

Plays computer simulated games rather than board games.

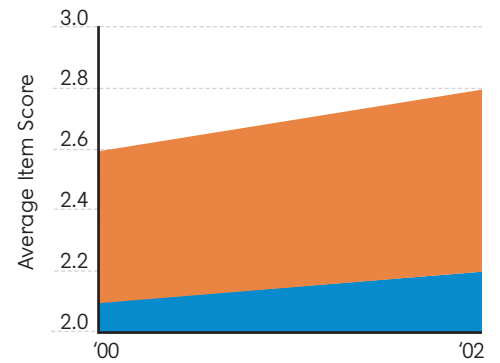
Cooperative Learning
(learning from and with each other)



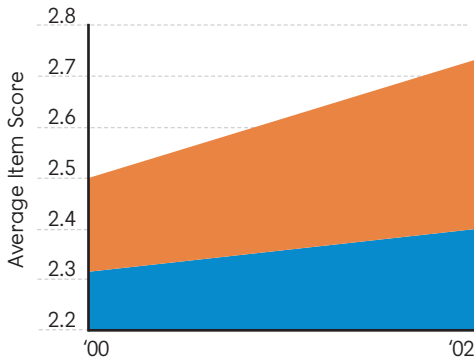
Higher-Level Thinking Skills
(solving complex problems, analyzing and evaluating information, and forming opinions)



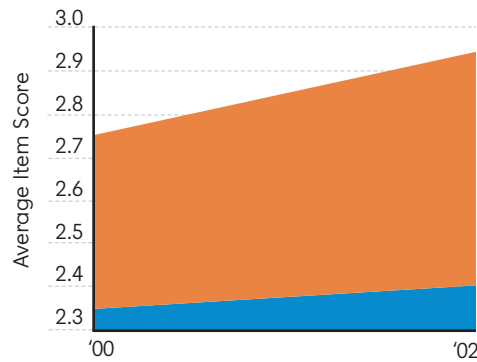
Interactions With the World Outside of School



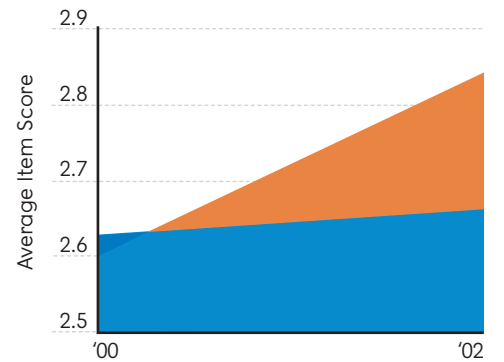
Interdisciplinary Activities
(learning from multiple subjects at one time)



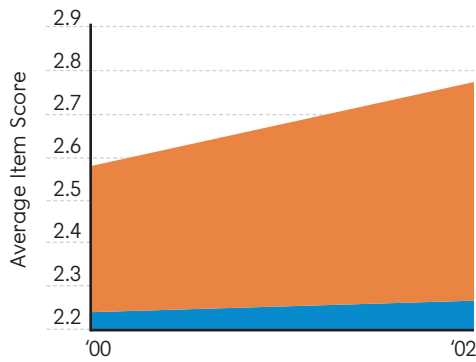
Activities that Students Find Engaging
(showing interest in school work)



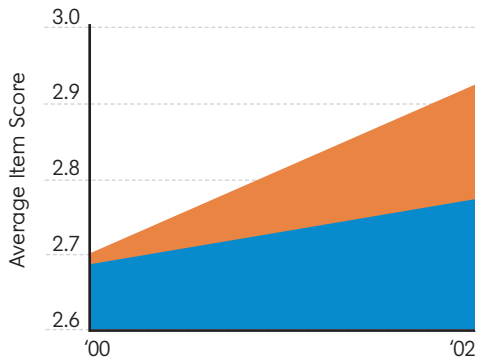
Providing Extra Help
(extra assistance from teachers)



Coaching Rather than Lecturing
(students take an active role in learning)



Achievement Measures Based on Products, Progress and Effort
(vs. simple right or wrong answers)



■ Middle/High Teachers
■ Middle/High Students

Downloads music instead of playing records.

Fell in love with Barney instead of Captain Kangaroo.

Pays with debit cards rather than checks.

“Have more computer affiliated assignments. Also, have more computer activities related to class.”

11th grader

“I am not very proficient at integrating technology. I might become better if we were permitted to install software specific to our courses.”

teacher

So, why does this gap in perception exist?

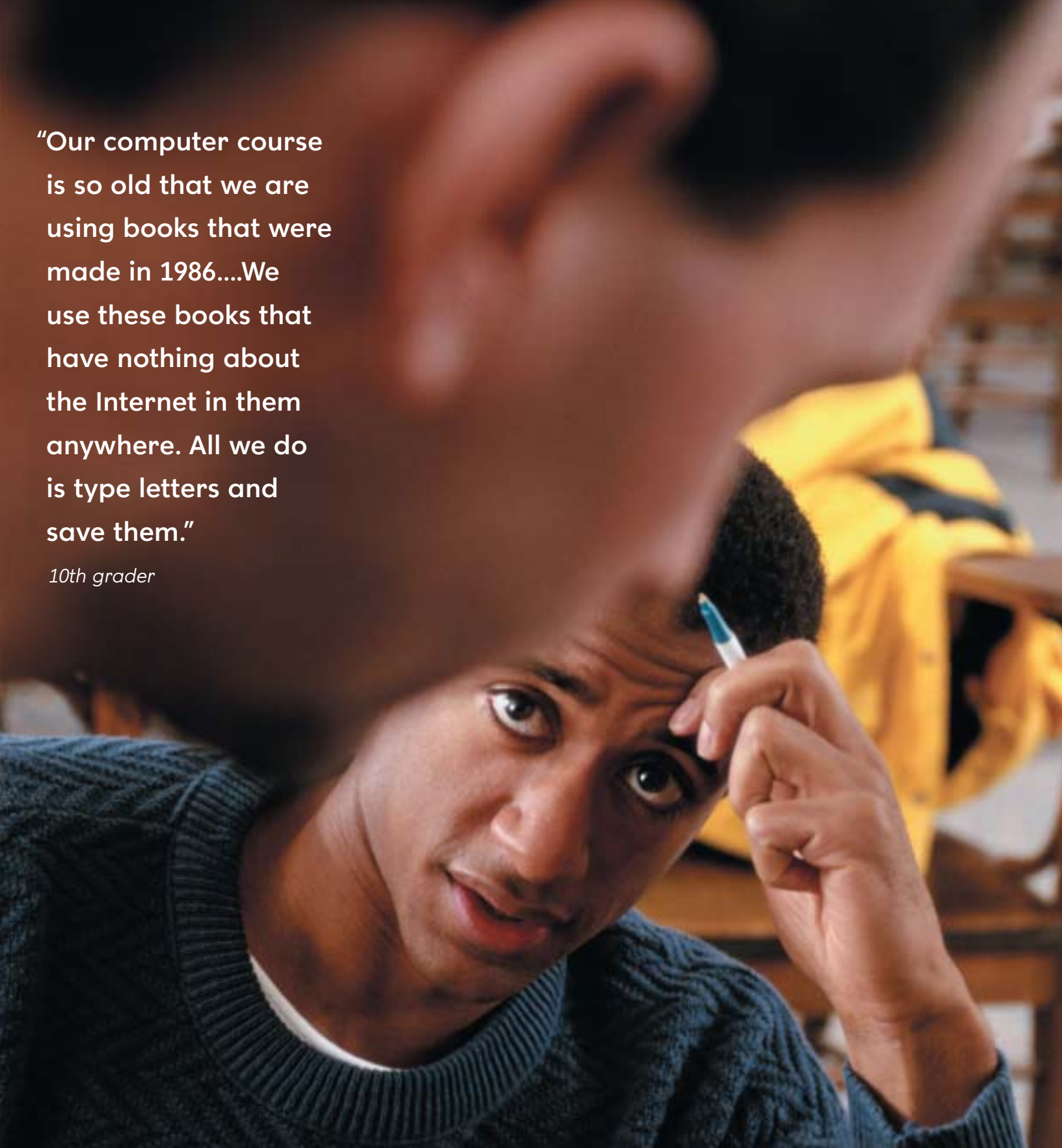
Teachers may be feeling good about their newly acquired technology skills and, as a result, they may be overestimating the impact their learning is actually having on classroom dynamics. While teachers believe they are integrating technology more fully into the classroom, the TAGLIT data clearly demonstrate that students feel technology is still an “add-on” to the learning experience. Students report that technology rarely plays a role in classroom assignments, and is seldom integral to the outcome of those assignments.

An analysis of student responses to the open-ended TAGLIT questions revealed that teachers are consciously and sub-consciously placing barriers for student use of technology. Students indicated that they are allowed only to use the technology that the teacher decides is appropriate for a specific lesson/unit. In too many cases, teachers used technology as a reward or punishment, taking away access as a means of “correcting” student behavior. (If technology were considered as integral to learning as a textbook, a teacher would never consider its removal.) Additionally, students described recurring instances of not being able to use a computer in the school because a teacher was already using the equipment. In one instance, a student reported that a school principal removed classroom equipment for her own personal use.

Overall, students themselves are not being given the opportunity to use appropriate technological tools independently. This may be because teachers are attempting to integrate technology into their instruction only as they feel comfortable, yet; much of what they are doing is not transforming their teaching practice in meaningful ways. Students value opportunities to learn and have their own ideas about how technology can be used to support the learning process. How much teachers actually allow students to use technology in the classroom appears to be an issue for students.

True or not, these are student perceptions, and are shaping students’ views of technology as the least accessible tool for learning. As a result, students may look for learning content outside of the classroom and may no longer see the school as their only, or even primary, source for building knowledge.





"Our computer course is so old that we are using books that were made in 1986...We use these books that have nothing about the Internet in them anywhere. All we do is type letters and save them."

10th grader

Unanswered Questions:

What are the implications of a widening gap in perceptions between students and teachers?

What implications do the discoveries have for the design of the classroom?

What does meaningful integration of technology into the classroom look like?

Engaging Student Expertise:



Conservative estimates predict that by 2005, 36.3 million students will be online from their homes, as compared to 27.5 million in 2001.* When students leave their school campuses, they are increasingly using the Internet and other emerging technologies, developing their own ideas about how to incorporate technology into their learning processes. In their responses to the open-ended TAGLIT questions, students shared many innovative ideas about how to better harness technology in an educational setting — ideas that extended beyond the classroom and into ways of operating the school itself more efficiently.

If the new technological competencies of students are not valued in a classroom setting, students may see less and less relevance between school and their lives outside the classroom. The TAGLIT data clearly demonstrate that students want to apply their skills and imagination to the learning experience, but school leaders don't appear to be listening.

“Physics is the only class in which we use technology. In this class, we learn off the satellite. Since we don't have a teacher, we can still learn physics because of the technology we have and I consider that a big plus.”

12th grader



“We could make a school webpage to let people know what's going in the classrooms and what we've been learning. We should have our own website!”

4th grader

* Grunwald Associates

Get Connected

Want to see what students really think about technology in schools? Why not go straight to the source? The BellSouth Foundation created a special web site that asks kids to share their visions for technology in their schools. Students share their ideas about how technology can play a larger part in their learning experiences — both in and out of the classroom. Log on to learn more, <http://www.bellsouthfoundation.org/kids> .

In Search of the Collaborative Classroom

What's a teacher to do?

In a word, collaborate. Teachers



must invite and engage the best of what each person can contribute in order

to create learning experiences that supercede what any one person could accomplish in isolation. Teachers have the unique challenge of being an instructional leader — creating the instructional environment, incorporating standards for learning and student achievement, and guiding students through the learning experience — while also being an engaged learner.

Teachers don't have to be technological "experts" to engage students, but rather provide the right combination of guidance and autonomy to create an environment in which students can bring their own technological expertise to bear in a dynamic, challenging learning experience. Instead of assuming the role of didactic conveyor of all knowledge, the teacher can instead take the role as the visionary, or "lead learner", in addressing the

curriculum. Rather than function as a gatekeeper for technology use, the teacher can instead serve as an access provider, giving students the room to use technologies both in and outside of the classroom to complete learning activities. In other words, although the teacher must provide the foundation for *what* students need to learn, the teacher can allow the students more input in deciding *how* that learning will take place — and how technology will play a part.

A particularly good example of this approach to instruction occurred in one middle school during the Power to Teach program. Rather than lecture on ancient Rome, the teacher developed a group research project for student teams. The teacher provided baseline expectations and topics to cover, but allowed students to design their own plans for acquiring the requisite knowledge. As a result, student teams brought diverse information on Roman culture into the classroom. Thus, the teacher's instructional decisions resulted in a meaningful, yet lively and engaging experience for the entire class.



"Technology in our school can be improved by having more networking options between the school and home, and more updated computers, digital cameras, video cameras and VCR equipment. Technology is plentiful but all teachers should have to take a mandatory class about the Internet, etc."

7th grader

Unanswered Questions:

How do we leverage the capabilities of the students in the design and delivery of the learning experience?

How do we help teachers begin to think about using technology to make learning more meaningful, not just different?

What do we need to be doing with teachers if we can't "catch them up"?

It's a Whole New World —



As indicated by the BellSouth Foundation's own work and by the work of countless other education and organizational development experts over the years, the successful integration of technology into teaching and learning experiences *will never happen* unless principals and school district leaders provide their full support and participation.

Principal and district-level leadership is imperative to redefine teacher roles and redesign the organizational structure of schools to integrate technology. Principals, superintendents and school board members all need to be much more thoughtful in preparing for teacher/student collaboration. Most importantly, changes in policy around educational technology **MUST** incorporate the voices of the students themselves.



Unanswered Questions:

How can districts and schools use available data to inform the design of and funding for professional development for teachers around technology integration?

What is the new set of quality characteristics for professional development?

We Need a Whole New Way of Thinking

Vision: The Principal Principle

On every Power to Teach site visit, observers looked for the extent to which teachers and students were able to articulate the vision the district leaders had for the use of technology in schools. The site visit reports, in aggregate, revealed that the principal is a critical link in the chain in terms of communicating that vision. In settings in which the principal clearly communicated expectations around technology use, the teachers demonstrated a higher level of understanding about their new practices and their impact in the classroom. Unfortunately, this clarity was limited to a minority of schools.

Although principals were not a target for any component of the BellSouth edu.pwr³ initiative, several



participated in conference roundtable discussions about their roles with respect to technology (as well as the roles of superintendents and technology directors). During the discussions, principals described a need to rethink their role within the school. Specifically, they noted that they needed to redefine their role as being that of an “instructional leader” rather than simply being viewed as an administrative manager. All team members commented on both the need for principals to set clear expectations for instruction in a technology-rich environment and the lack of knowledge and skills to appropriately serve this need. In almost all districts, leaders discovered that they were not adequately supporting the meaningful use of their technology infrastructure.

Support: More Meaningful Professional Development

Another clear finding from the Power to Teach experience is that professional development for teachers must continue to improve. Professional development experiences around technology cannot be viewed as simply “adding skills” through hardware and software training, but as a coordinated approach on multiple fronts.

Reports submitted by Power to Teach teachers who attended the 2000 National Education Computing Conference (NECC) demonstrated a desire to engage in professional interaction and reflection. All of the teachers reported the face-to-face conversations they had with other teachers and leaders would lead to more effective changes in their practice. In a follow-up survey with teachers, many of them commented on the lack of time in the workday to reflect on current issues with peers.

Another issue that emerged from the teacher survey was the focus by teachers on the emotional aspects of learning technology instead of the behavioral changes necessary to integrate technology. One survey question asked teachers if they preferred professional development with an internal (within the school district) or external (state, non-profit or for-profit) provider. A large majority of the teachers preferred to work with their own district’s staff trainers primarily because of a higher comfort level — an emotional need. There was little discussion about desiring the highest quality source of professional development.

How do we develop appropriate and accurate measures for teacher professional development?

How can districts assess and improve the “real” usability of technical infrastructures?

Infrastructure: Building the Basics

Finally, meaningful technological integration in teaching and learning is still held up in many cases by a lack — or unreliability — of infrastructure. Both students and teachers in the TAGLIT survey repeatedly expressed their frustrations with computers that crashed, ran extremely slowly, had outdated software or could not provide Internet access. Interestingly, it was the 2000 administration of TAGLIT that revealed the challenges of creating a network that could support multiple online uses at one given moment. Simultaneous log-ons from groups of students caused networks to crash. This experience brought new meaning to what network capacity a school district would need for every student to be online for instructional purposes. It appears that many districts are still in the process of building their instructional technology capacity.



“The use of technology in our school could be improved by giving us the tools we need. In order for us to be able to keep up with the technological world today we must have the computers, lab equipment and teachers that help us move forward in our knowledge. We need the up-to-date technology in order to stay ahead and not be lagging behind everyone else.”

12th grader





Once again, collaboration with students becomes key to addressing vision, professional development and infrastructure issues. By listening to student concerns, engaging their interests and passions and working with them to develop new learning opportunities, the solutions for these technology-related challenges will more clearly emerge.

We are a team — teacher and student.
We engage each other's wisdom, skills and energy.
We invite each other's perspectives into the learning
experience. Together we create something
innovative and inspiring, that supercedes what
any one of us can accomplish on our own.



Power to Teach Grantees

Birmingham City Schools	Birmingham, AL
Diocese of Birmingham Schools	Birmingham, AL
Homewood City Schools	Homewood, AL
Lee County School	Opelika, AL
Mobile County Public Schools	Mobile, AL
Institute of Computer Technology	Sunnyvale, CA
Bay District Schools	Panama City, FL
Broward County Schools	Fort Lauderdale, FL
Miami-Dade County School Board	Miami, FL
Miami Museum of Science	Miami, FL
Palm Beach County Schools	West Palm Beach, FL
St. Johns County Schools	St. Augustine, FL
Clayton County Schools	Jonesboro, GA
Dodge County Schools	Eastman, GA
Fulton County Schools	East Point, GA
Georgia State University	Atlanta, Ga
Madison County Schools (includes Oconee & Barrow counties)	Danielsville, GA
Marietta City Schools	Marietta, GA
Murray State University (Kentucky Academy of Technology Education)	Murray, KY
Calcasieu Parish Schools	Lake Charles, LA
Plaquemines Parish Schools	Port Sulphur, LA
Sabine Parish Schools	Many, LA
St. Charles Parish Schools	Luling, LA
Alcorn School District	Corinth, MS
Jackson Public Schools	Jackson, MS
Mississippi Department of Education, Office of Ed Tech (includes South Delta and Simpson School Districts)	Jackson, MS
Mississippi School for Mathematics and Science (includes Clay, Noxubee, Oktibbeha and Webster County Schools)	Columbus, MS
Poplarville School District	Poplarville, MS
Chapel Hill-Carrboro City Schools	Chapel Hill, NC
Rowan-Salisbury Schools	East Spencer, NC
Wake County Public Schools	Raleigh, NC
Winston-Salem/Forsyth County Schools	Winston-Salem, NC
Anderson School District 5	Anderson, SC
Dillon School District 2	Dillon, SC
Florence Public School District 1	Florence, SC
USC Aiken Consortium (Abbeville, McCormick and Edgefield School Districts)	Columbia, SC
Blount County Schools	Maryville, TN
Covington City Schools	Covington, TN
Franklin Special School District	Franklin, TN
Metropolitan Nashville Public Schools	Nashville, TN
Williamson County Schools	Franklin, TN

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