Teachers Talk Tech®
2006

Fulfilling Technology’s Promise of Improved Student Performance
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CDW•G employed QED to conduct the fourth annual in-depth research study into what K-12 teachers are saying about technology in the classroom. Quantifiable teacher input helps parents and administrators understand the importance of technology investments. Teachers are often in the best position to see the true impact of technology on learning and know what it can and cannot do. Thus, feedback from classroom educators can be essential in helping communities make academic and technological choices that are in the best long-term interests of students and schools.

Specific objectives of this study were to:
- Learn how K-12 teachers use computers in their jobs
- Evaluate technology’s role and efficacy in education
- Give K-12 teachers a voice regarding the use of computers in schools
- Assess the effectiveness of computers in preparing students for the 21st century work environment
Key Findings for 2006
Fulfilling the Promise of Improved Student Performance

• Technology is beginning to deliver on the promise – positively impacting student performance
  – Technology is bridging the gap between 21st century skills and core curricula (21st century skills cannot guarantee student success if students can’t read, write, comprehend and calculate)
  – The teaching process is fundamentally changing as teachers move from learning how computers work to using technology to change how they teach, culminating in transforming how students learn
  – Teachers believe technology is increasingly influencing the teaching of thinking and learning skills to develop lifelong learners
  – Teachers view technology as an effective tool for teaching, as well as for administration, communication and research functions
  – Education is today where business was 20 years ago – on the cusp of radically transforming the learning environment

Teachers Say
“Technology is intricately woven into what I am trying to teach and the more these kids recognize that technology is a vital tool, and not just something to play games, the further they are going to get and the better off they are going to be.”
— Carver Middle School

All quotes from Teachers Talk Tech® 2006 one-on-one interviews
21st Century Skills


- 21st century skills include:
  - Critical-thinking and problem-solving
  - Communication
  - Creativity and innovation
  - Collaboration
  - Contextual learning
  - Information and media literacy
Technology as a Teacher’s Tool

Technology has a profound impact on teaching

- In the last three years, teachers have increasingly reported that technology has changed the way they teach “a great deal” (40 percent, 2004; 56 percent, 2005; 54 percent, 2006), an indication that technology is being used and embraced in the classroom.
- The majority of teachers (54 percent) report that technology is having a profound impact on the classroom and how they teach; the majority of teachers with over 10 years of classroom experience feel the change most.

Q1. Since you began teaching, has computer technology changed the way you teach?

Veteran teachers have seen technology change the process of teaching, while younger teachers have always had some link to technology. The new goal is to have technology as common as pencils and paper. The new measure is to have technology viewed as irreplaceable, but not revolutionary.
Technology as a Teacher’s Tool

Teachers increasingly say computers are critical to their jobs

- Computers are an increasingly essential job tool for teachers. Four out of five teachers believe technology is very or somewhat important to teaching, especially for administrative functions (88 percent) and communications with others (86 percent).

Q) Rate the importance of computer technology for you personally in each of the following-teacher related functions

<table>
<thead>
<tr>
<th>Function</th>
<th>2006 (n = 1000)</th>
<th>2005 (n = 1000)</th>
<th>2004 (n = 1000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrative functions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>such as attendance and grading</td>
<td>88%</td>
<td>86%</td>
<td></td>
</tr>
<tr>
<td>Communications with other teachers, administrators, parents and students</td>
<td>86%</td>
<td>83%</td>
<td></td>
</tr>
<tr>
<td>Research information for preparing lessons</td>
<td>81%</td>
<td>79%</td>
<td></td>
</tr>
<tr>
<td>As a teaching tool for students</td>
<td>79%</td>
<td>77%</td>
<td></td>
</tr>
</tbody>
</table>

Q) Rate the importance of computer technology for you personally in each of the following-teacher related functions
Teachers continue to become more skilled at using computers, with almost two-thirds (63 percent) characterizing their computer and classroom technology skills as somewhat advanced and advanced.

In 2006, just 2 percent of teachers considered themselves to be beginners, compared to 7 percent in 2003.

Q) How would you describe your skill set with computers and other classroom technology?
Technology as a Teacher’s Tool
Better technology skills translate into better use of instructional tools

- In most areas, approximately three-quarters of teachers consider themselves highly competent or competent using technology as an instructional tool.
- Using technology to develop critical thinking skills and using data analysis tools for student assessment are key to student success, but fewer teachers feel highly competent in these areas.

**Q) Please rate your level of competency in the following areas**

- **Using instructional software**
  - Highly Competent: 26%
  - Competent: 53%
  - Slightly Competent: 16%
  - Not at all competent: 2%
  - Don’t know/don’t use/have: 3%

- **Integrating computers into lessons**
  - Highly Competent: 26%
  - Competent: 50%
  - Slightly Competent: 18%
  - Not at all competent: 3%
  - Don’t know/don’t use/have: 3%

- **Using technology to develop critical thinking skills**
  - Highly Competent: 16%
  - Competent: 50%
  - Slightly Competent: 27%
  - Not at all competent: 5%
  - Don’t know/don’t use/have: 2%

- **Technology tools such as presentation software, spreadsheets and the Internet**
  - Highly Competent: 34%
  - Competent: 44%
  - Slightly Competent: 18%
  - Not at all competent: 3%
  - Don’t know/don’t use/have: 1%

- **Data analysis tools for student assessment and evaluation**
  - Highly Competent: 21%
  - Competent: 49%
  - Slightly Competent: 24%
  - Not at all competent: 4%
  - Don’t know/don’t use/have: 2%

Data analysis tools give teachers, parents and administrators an almost-instant picture of where students are and how to adjust for improvement, a key No Child Left Behind (NCLB) requirement. Without technology it would be impossible to meet the requirements of NCLB.
Two-thirds of teachers (67 percent) integrate technology into their classroom instruction at least a couple of times a week; 37 percent integrate it on a daily basis.

As expected, daily use of technology is more common at the elementary level (44 percent) than at the middle (33 percent) or high school (34 percent) level.

The room where students use technology differs by grade level, with elementary school students using computers more often in the classroom and middle and high school students using computers in the media center or computer lab.

**Teachers Say**

“We use technology in every subject, but not necessarily every day. I use it every day for math, the other areas depend on what I can find to go with what we are doing.”

— Jefferson School
While computer use in all learning areas has increased, teachers have moved beyond using computers simply for teaching basic skills and rote learning, increasingly including technology to teach critical thinking skills (68 percent in 2006 vs. 59 percent in 2005) and scientific concepts (60 percent in 2006 vs. 51 percent in 2005).

Teachers now have an understanding of the broad use of technology across disciplines. Technology is bridging the gap between simply learning technology skills and using technology to improve core curricula skills.

“Students should be able to analyze and use cognitive thinking skills and apply them to other situations. It is not all about book learning. They need to learn not just to answer a question directly, but they need to learn how to think a problem through.”

— Carver Middle School

Q) Please rate how effective you feel computers are as a classroom tool in addressing each skill.
Technology as a Teaching Tool
Computers increasingly impact student performance

- 2006 results demonstrate a significant increase over 2005 in how teachers view the impact of technology on teaching. Leading the way are creative thinking, more independent thinking and engaging students in learning.

Teachers Say
“I think technology in the classroom makes it more interesting for the kids. They are more willing to do the work…Most of them will sit in front of the computer and feel like they could do something. They are more drawn into a computer than they are a book.”
— Katy High School

As teachers continue to embrace technology in the classroom there is a larger role for technology in the core curriculum.

Q) Identify some issues that may affect the best use of computer technology as a teaching tool in the classroom.
Access, time and budget are the top three obstacles to fully integrating computers into the curriculum.

Other responses:
- Technical problems
- Lack of computer availability
- Lack of tech supplies/equipment
- Lack of tech support
- Computers not necessary/not always the best tool
- They quickly become outdated
- Time consuming
- Not all students are computer savvy
- Requires extra teaching
- Kids need more monitoring

Q) What do you see as the most significant obstacles to integrating technology into your daily curriculum?
Teachers who agree their students have enough access to computers are also more likely to use technology in the classroom.

2006 data indicate a direct correlation between student access to computers and the degree to which technology is integrated into classroom lessons.

We see a connection between access to technology and the belief that technology does indeed work.

Q) Please rate how effective you feel computers are as a classroom tool in addressing each skill.
For many years technology skills were taught separately from the core curriculum. Lack of understanding, time, access, and budget kept the two areas apart.

Today, increased technology professional development has led to an increased understanding of technology’s role in the core curriculum, but obstacles still remain.

In the future, as the obstacles are overcome, educators can actively integrate to create a seamless technology-enabled core curriculum.
There was a significant decrease (12 percent) from 2005 to 2006 in the number of teachers stating they did not receive any hours of training in the use of computers and classroom technology. Yet, nearly one-fifth of teachers received no technology training over the past 12 months.

A significantly smaller number of teachers report receiving no training in 2006 versus previous years. Considering how technology is changing the teaching process, the number should be closer to zero.

Q) Over the past 12 months, how many hours of training have you received in the use of computers and other classroom technology that has been provided by your school or school system?
Technology as a Teacher’s Tool

The more hours of technology professional development that teachers receive, the more likely they are to feel that technology is an important classroom tool.

Teachers Say

“You are able to give students another avenue to keep the kids engaged in learning. If you have students that are learning at a difference pace, whether slower or faster, you can help them.”
— Katy High School

Q) Please rate how effective you feel computers are as a classroom tool in addressing each skill.

<table>
<thead>
<tr>
<th>Skill</th>
<th>None (n = 193)</th>
<th>Up to 8 hours (n = 482)</th>
<th>More than 8 but less than 16 hours</th>
<th>More than 16 hours (n = 134)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Representing and presenting information</td>
<td>70% (64%)</td>
<td>80% (90%)</td>
<td>81% (88%)</td>
<td></td>
</tr>
<tr>
<td>Analyzing information</td>
<td>75% (80%)</td>
<td>70% (81%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reading skills</td>
<td>76% (75%)</td>
<td>76% (75%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Critical thinking skills</td>
<td>78% (78%)</td>
<td>76% (75%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Learning scientific concepts</td>
<td>68% (65%)</td>
<td>57% (65%)</td>
<td>57% (68%)</td>
<td></td>
</tr>
<tr>
<td>Collaboration skills</td>
<td>66% (65%)</td>
<td>67% (66%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performing artistic activities</td>
<td>42% (40%)</td>
<td>45% (45%)</td>
<td>50% (50%)</td>
<td></td>
</tr>
</tbody>
</table>

Teachers with more technology professional development are better able to integrate computers into lesson plans, use instructional software and use technology to help students develop critical thinking skills.
Professional Development as an Integration Tool

Teacher confidence grows with more training

- The more technology-related professional development teachers have received, the more likely they are to integrate 21st century skills into the classroom.

Q) Some of these skills we have been asking you about are associated with teaching 21st century skills. After each statement, please tell me whether you agree or disagree with the statement where 1 is strongly disagree, 2 is somewhat disagree, 3 is neither agree nor disagree, 4 is somewhat agree and 5 is strongly agree.

Strongly and Somewhat Agree Ratings

<table>
<thead>
<tr>
<th>Statement</th>
<th>None (n = 193)</th>
<th>Up to 8 hours (n = 482)</th>
<th>More than 8 but less than 16 hours</th>
<th>More than 16 hours (n = 134)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I incorporate teaching of 21st century skills into my curriculum.</td>
<td>60%</td>
<td>65%</td>
<td>76%</td>
<td></td>
</tr>
<tr>
<td>Teaching 21st century skills strengthens skills for standardized testing.</td>
<td>51%</td>
<td>59%</td>
<td>68%</td>
<td></td>
</tr>
<tr>
<td>Teaching 21st century skills is an emphasis in my school.</td>
<td>42%</td>
<td>59%</td>
<td>67%</td>
<td></td>
</tr>
</tbody>
</table>

Technology professional development gives teachers confidence
Professional Development as an Integration Tool

*Teaching 21st century skills requires 21st century training*

- The more technology training teachers receive, the more likely they are to see the positive impact technology can have on students

<table>
<thead>
<tr>
<th>Issue</th>
<th>None (n = 193)</th>
<th>Up to 8 hours (n = 482)</th>
<th>More than 8 but less than 16 hours</th>
<th>More than 16 hours (n = 134)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The use of classroom technology helps prepare my students for the 21st century work world.</td>
<td>90%</td>
<td>90%</td>
<td>78%</td>
<td>93%</td>
</tr>
<tr>
<td>Computers engage my students in the learning process.</td>
<td>83%</td>
<td>86%</td>
<td>73%</td>
<td>88%</td>
</tr>
<tr>
<td>My students' academic performance improves with the use of classroom computers.</td>
<td>89%</td>
<td>89%</td>
<td>69%</td>
<td>74%</td>
</tr>
<tr>
<td>Computers help encourage my students to think creatively.</td>
<td>68%</td>
<td>68%</td>
<td>73%</td>
<td>74%</td>
</tr>
<tr>
<td>Classroom technology helps improve scores on standardized tests.</td>
<td>64%</td>
<td>62%</td>
<td>57%</td>
<td>57%</td>
</tr>
<tr>
<td>Having computers in the classroom enables me to do more one-to-one teaching with students.</td>
<td>53%</td>
<td>51%</td>
<td>45%</td>
<td>45%</td>
</tr>
<tr>
<td>My students think more independently due to computers in my classroom.</td>
<td>59%</td>
<td>54%</td>
<td>46%</td>
<td>46%</td>
</tr>
</tbody>
</table>

Δ: Teachers receiving more than 16 hours vs. zero hours

Q) **Identify some issues that may affect the best use of computer technology as a teaching tool in the classroom**

As with access, the more teachers are trained to use technology, the more they believe in it as a tool for success.
Call to Action

- Industry should focus on making technology, from computers and interactive white boards to software, a seamless part of the core curriculum – bring technology to the teachers, not teachers to the technology.

- Until core curriculum and technology skills are better integrated, teachers will continue to face serious time, access and budget challenges in facilitating technology in education. Teacher training and professional development should reflect this requirement.

- Technology is a vehicle to enable true differentiated instruction in today’s classrooms. Districts and technology providers need to be sure that remedial, on-target and accelerated students are all being served and realize the educational benefits of technology in the classroom.

- The educational technology industry shares the burden for making the case for technology to administrators, parents and policy makers and increasing the value of technology professional development.