

UPDATE OF TECHNOLOGY ALLIANCE

OCTOBER 1998 TECHNOLOGY IN EDUCATION TASK FORCE

REPORT & RECOMMENDATIONS

In October 1998, the Technology Alliance's Technology in Education Task Force issued a report and recommendations on the use of technology in Washington State's K-12 public schools. The purpose of the report was to give legislators and other key decision-makers an accurate snapshot of current technology use in the K-12 system, and to emphasize the importance of technology in student learning and achievement. The recommendations prescribed a set of proposed actions to promote and support the best use of technology.

Many changes in the technology, education and legislative arenas have taken place over the past three years. This briefing paper provides an update of the 1998 recommendations and insights on how the political, cultural and fiscal landscapes have changed in this short time. It is intended to bring task force members up to speed so they can knowledgeably begin a conversation about how they may be influential in bringing technology and its use in student learning and achievement to a higher level. For each original recommendation (noted verbatim in *italics* from Section 8, page 28 of October 1998 Report and Recommendations), the reader will become familiar with What's Happened, What Hasn't Happened, What's In The Works, and What To Consider in understanding what has transpired since October 1998 and how to move forward.

COMPUTERS ALONE ARE NOT ENOUGH

1998 recommendation: *We strongly encourage the Superintendent of Public Instruction, the Educational Service Districts, the professional associations, local school boards and others who have served as partners in this effort to provide the guidance and resources to help schools and school districts design more useful and comprehensive technology plans that will serve as real guides for the wise allocation of resources.*

What's happened

Almost all 296 school districts have comprehensive technology plans. At the latest count, 290 of the 296 school districts in Washington State have comprehensive technology plans. This is up from the 216 school districts that had plans in 1998. A good portion of these school districts has such plans because of the "carrot approach" prescribed by federal technology literacy challenge grants and E-rate programs—technology plans are a requirement for eligibility.

The quality of technology plans vary—they are not of equal quality—but, at the very least, according to the Office of the Superintendent of Public Instruction, a minimum bar has been established. Earlier plans that were adopted in the past few years were more checklist oriented. In the past year, the state has moved toward a more qualitative approach. As connectivity and access have become more of a “given,” focus has shifted toward staff development and technology support.

Nearly all classrooms wired for Internet access. At the time of the October 1998 report, 64 percent of the classrooms in the responding districts had Internet access, with 38 percent of the districts having Internet access in ALL of their classrooms. According to OSPI that completed a building technology inventory in March 2001 (responses received from 2080 instructional school buildings, representing nearly 100 percent of the statewide total), 95 percent of the instructional classrooms (54,180 out of 57,046) can now access the Internet from one or more computers in their classroom. This represents a leaping increase from only 4 percent when a similar survey was conducted in 1994.

Computer to student ratio is 4:1. In 1998, Washington State students had a 5:1 computer to student ratio. Today, that ratio is just under 4:1. It should be noted, however, that less than 57 percent of the instructional computers meet the minimum statewide standards recommended by OSPI, leaving the computer ratio for “standards-based computers”* less than 7:1. *Defined as Pentium PC 133 MhZ or higher, PowerMac 4400/5400/5500/6400/6500/7300/7600/8600/9600, Mac G3 or G4 or iMac.

Note: This statistic is misleading. The real question should be: How many computers are there per classroom? If all the computers are in the library or a lab, students don’t have immediate access and aren’t seen as an “at your fingertips” tool in learning.

What’s in the works

State technology plan update. This year, the state technology plan will be updated by OSPI. The Technology Alliance will be represented on the committee directing this endeavor. It’s no secret technology continues to develop and grow at a rapid pace. Consideration should be given to making this plan a flexible document, and reflective of the nature and practice of the tech industry and schools since plans can be obsolete as soon as it hits the paper.

Technology part of school accreditation? The State Board of Education will examine how it evaluates schools for annual accreditation and compliance with basic education requirements. The board will explore adopting supplemental basic education requirements, which may include technology. In addition, it will be looking at new criteria for basic education allotments. Technology, again, will be on the discussion table as an essential element.

Consider this ...

What's happening in the classroom? As pointed out by technology experts, while it's important for school districts to have a comprehensive technology plan, at the end of the day, when it comes right down to truly integrating or embedding technology at the classroom level, the real questions are: How many schools have a technology plan? How many teachers are aware of such a plan and are acting on it?

INVESTING IN PEOPLE IS ESSENTIAL

Professional development for teachers.

1998 recommendation: *1) OSPI, with the support of the Legislature, and the cooperation of the Governor's Office, the ESDs, and the professional associations should develop and disseminate to teachers lessons plans and other guides to the best uses of technology in the classroom. 2) Staff training in technology use needs to get a substantially larger portion of in-service training budgets. A well-developed and well-supported peer training model is the best approach to training teacher in the classroom use of technology. 3) Development of a web site juried by master teachers that contains the best teacher-designed electronic content and curriculum tied to the state's EALRs. The website should be linked to other innovative curriculum web sites from this and other states.*

What's happened

Many individual sites for lesson plans and best practices. There are a number of web sites and organizations that develop and disseminate lesson plans and best practices but they are in too many different places. Teacher Leadership Project (TLP), Technology Literacy Challenge Fund (TLCD), and The Learning Space have their own sites, as do the Educational Service District's (ESDs) and some school districts. Popular for-profit resources include MarcoPolo and Edgate's Copernicus.

Many professional development programs for teachers have flourished.

Teacher Leadership Project (TLP). Entering its fifth year, TLP, funded by the Bill & Melinda Gates Foundation, has reached some but not all school districts. It has teachers representing 1200 private and public schools and 246 school districts. The purpose of TLP is to demonstrate how technology can be used to help students meet the standards across all subject areas and show the possibilities. Its impact study shows that TLP teachers are providing leadership in their schools and accomplishing the initial mission of the project. Its last year of operation will be 2002-2003. While exit surveys indicate a high level of satisfaction and success by graduates, many were frustrated by their inability to solve technical glitches that occurred during the school day and their first year with TLP. Most teachers were faced with limited technical support, and often had to wait long periods of time for what help they did get. Teachers also strongly expressed that

TLP would be a stronger program if the professional development component were extended.

Technology Literacy Challenge Fund (TLCD). In its fifth year, TLCD provides \$5million at the state level for a variety of best practices to improve learning. As recommended by the Alliance Education Task Force, the fund has statewide impact. In the first four years, TLCD was classroom-specific where participants created a variety of projects using technology. This year it's trying something different – the fund is focusing on 216 middle school math classrooms, assuming there will be more cadre building. There are five programs that were approved in 2000-2001 and in their second year of funding. *Gen Y Project, Learning Disabilities and Technology Project, Technology and Essential Learning Developing Effective Classrooms (TELDEC), Technology Information Project (Tip21), and Using Digital Tools to Enhance Learning Project.*

Teach the Teachers. A program sponsored by QFC and in collaboration with a number of local public and private sector partners. *Teach the Teachers* is designed to help K-12 educators use technology effectively in the classroom. Two hundred teachers (teams of two) from selected school districts will participate each year in a one-week intensive workshop to create a technology-based project that can be used in the classroom. This year's seminar took place this summer at Western Washington University, with Seattle Public Schools technology staff teaching the majority of the courses.

Intel's Teach to the Future. This is a new program in its first year and will be implemented locally by The Learning Space. The two-three year program will be offered to 2,000 teachers across the country and will extend internationally to an additional 2,000 educators. The program will focus on effectively integrating technology into the classroom curriculum to improve student learning and achievement. Microsoft is a key sponsor. The program boasts 40 hours of hands-on learning and 10 curriculum modules to address country and district standards. It is based on the ACE (Applying Computers in Education) program that took place from 1998 and 1999; Washington was a participant. Training will begin in Washington state this year, and districts are invited to apply.

What hasn't happened

No central site or link for lesson plans, best practices or curriculum tied to EALRs.

If you're a participant in any of the above-mentioned projects or are one of the savvy, you will find an abundance of resources. But for the rest, there is no convenient or obvious place to go for these much-needed curriculum resources, so one is left to find his or her way through the mire. This amounts to chaos and a gap for those who are "in the know" and those who aren't. ESDs also have their own individual web sites, which they are trying to centralize, but are challenged with coming up with a common definition.

As recommended by the task force, OSPI hasn't developed a site that coordinates lessons plans or best uses of technology in the classroom, nor has anyone stepped up to coordinate a web site, juried by master teachers, that features stellar content and curriculum tied to the state's EALRs, and links to best practices from other states. In

part, the WAVES project, which failed to receive funding from the Legislature this past session, intended to address centralized dissemination of best practices.

Technology inservice training remains at relatively same level. There are two major routes available to teachers regarding technology training: those offered by school districts and those offered by non-profits or foundations. The portion of a district's inservice budget dedicated to technology training varies a great deal. Overall, technology hasn't seen an increase in its portion of inservice training.

Principals and superintendents.

1998 recommendation: *A comprehensive professional development program in educational technology should be established for principals and superintendents and is needed to jump-start a technology transformation on a statewide basis.*

What's happened

Smart Tools Academy ramped up the technology know-how for 70 percent of Washington State's educational leadership. *Leadership makes a difference.* The Smart Tools Academy trained 70 percent of the state's principals and superintendents from 1998-2000. Now, the Gates Foundation is responsible for the program, which has gone nationwide. It is no longer available to Washington State administrators.

Smart Tools was instrumental in getting those principals and superintendents with little background on technology up to speed. Participants going through the program had the opportunity to be enlightened by and with their colleagues on the possibilities of technology as part of the curriculum.

What hasn't happened

No one has picked up the Smart Tools Academy for Washington State. With permission, school districts, such as Seattle Public Schools, have taken additional grant money and provided the Smart Tools Academy Program to new principals, recent hires and those who hadn't previously participated. The Spokane School District also has used the academy's curriculum to train its administrators. Consideration should be made to adopting this ongoing approach as administrative leadership is forever changing, and getting as close to 100 percent participation will benefit everyone.

Teaching colleges

1998 recommendation: *Our state's teaching colleges should review and revise their teacher training curriculum so that it's more responsive to both ongoing education reform and to the use of technology in the educational process. The State Board of Education should work with the state's teaching colleges, professional associations, the task force and others to define new standards for colleges of education by the end of 1999. To encourage innovation, grants should be made available to colleges that develop model programs. Teaching colleges failing to make reasonable progress on implementing new standards should not continue to receive state funding after 2003.*

What's happened

Business and philanthropic investments. Since 1998, *Preparing Teachers to Teach (PT3)*, Title II money (enhancements for quality teaching) and Gates and Stuart foundation monies are evidence of interest from the business and philanthropy communities – fiscally and politically – in the integration of technology and learning and student performance.

Progress has been made but it has been uneven and slow. The good news is that teacher candidates have a more solid command of education reform and state EALRs. Nonetheless, just a few of the institutions, such as Central and Western, have embraced technology in substantial ways. Of the 22 programs, 16 are private and 6 are public. All have different levels of resources, there is a challenge to keep hardware current and, for some, leadership has been a revolving door. A number of programs have new deans. In the past six years, each of the six public institutions has seen a change in deans at the schools of education.

Colleges implement program standards. At the quickest, it takes roughly 3-1/2 years to transition newly adopted program standards. The State Board adopted new language for program standards in 1997. The institutions were not subject to evaluation or required to implement changes until September 2000. Site visits will begin this fall 2001.

Today's pre-service candidate is more technology savvy. Five years ago, the pre-service requirements consisted of two pieces: technical operations and application of technology. Today, many pre-service candidates are coming into university with the technical piece intact, leaving the application portion as the emphasis. Skills in isolation are useless. The challenge is to hone these technology skills and integrate them with instructional opportunities for kids or develop them so they are education-related.

Preparing Tomorrow's Teacher Today (PT3). A federal grant program from the Clinton Administration that trains future teachers to use technology effectively in the classroom. Its aim is to reach 1 million teachers by 2004. Three Washington institutions received grants in 2000: WSU, EWU and ESD 105. Central Washington University recently received an award from PT3.

What hasn't happened

Teacher colleges still have distance to go in preparing candidates to integrate technology into curriculum. There is a strong sense that schools of education are lagging behind in preparing teacher candidates how to incorporate technology into the curriculum. In the past three years, progress has been made largely due to federal funding of innovative approaches and partnerships (PT3); a variety of professional organizations' strong support of technology in teacher education; and online forums and journals. But there remains lots of room for progress. Younger faculty and teacher candidates are entering the university knowing how to use technology while more mature faculty members are

still trying to get more comfortable and proficient. Many professors are still trying to determine what good models of technology look like. Course offerings and approaches are not reflecting a technology-infused curriculum. As one higher education faculty member said, “The state has mandated learning standards for K-12 but the universities aren’t handed down EALRs. Higher ed institutions are left on their own.” It would be valuable to compare and contrast views of teacher candidates, the superintendents and principals who hire them and the college of education teaching faculty.

Coursework doesn’t meet “consumer” demand. Today, many pre-service candidates are coming into university with the technical piece intact causing some anxiety with higher education professors. The question has been put forth: How do we assess tech competency and not put everyone through a course? Some colleges have created a performance-based assessment, while others have sidestepped this or have had challenges developing one. There doesn’t appear to be much flexibility in offering up-to-date courses on how to incorporate technology into the curriculum i.e. adjunct faculty, off-campus or online course locations, times offered, etc.

What’s in the works

Re-evaluation of certification standards. This fall, the State Board’s subcommittee will evaluate the “Knowledge and Skills” portion of the teacher certification standards. Currently there are over 20 sub-elements. There has been discussion that this list should be reduced to no more than 6 to 8. Technology is included in the 20-element menu. Currently candidates are required to meet “Knowledge & Skills” standards, which include technology – societal impacts (how tech has contributed to changes in society) and its use in curriculum.

Survey results on preparedness of pre-service teachers. OSPI conducted a statewide survey of candidates who were certificated in 1999-2000. Results will be available in mid-October. This survey will allow a comparison of old standards to new standards. What impact have the new standards had on how candidates perceive their preparation of integrating technology into curriculum and how superintendent perceive candidates?

Site visits. Five teacher colleges will have site visits this 2001-2002 school year. All institutions will be visited in the next five years. The visits will take a look at facilities to evaluate what opportunities exist to *acquire* technology and how candidates can *demonstrate* they meet the state’s knowledge and skills standards.

Assessment on how well programs prepare teachers for technology integration. Higher education practitioners are currently working on a common pedagogy assessment tool/process to look for evidence that pre-service programs have integrated technology into curriculum. A pilot program is scheduled for this fall with six institutions. Field testing begins in 2002, and the assessment will be required in 2003.

Consider this ...

Clash with culture. By nature and practice, schools of education are not market driven or responsive to consumer groups or customers. Because of this, there may be inflexibility or less thinking “out of the box” when it comes to integrating technology with the curriculum. For example, having instruction only on campus as opposed to off-campus or on-line, or believing one has to be in their seat and present to learn. There remains a strong reluctance to repackaging instruction into modules and seminars. Some still cling to maintaining the traditional 5-credit class.

Training vs. reality. Acknowledging that school districts host a wide range of technology offerings (equipment and applications), beginning teachers can find themselves working with equipment and resources that are of lesser quality or standard than they’re used to.

Technology support

1998 recommendation: *The state staffing formulas for public K-12 schools should be increased to provide an adequate budget for schools to hire lead technology staff and support staff. The state should immediately examine changes that can be made to current hiring practices, in order to allow our schools to hire and retain the absolute best people we can possibly afford in all the key technical jobs. Precedents have been set for paying market rates for professionals such as architects and attorneys working for large districts, although these people are usually consultants and not full-time employees. A similar rationale can be applied to the hiring of technology staff.*

What’s happened

Down-time up a little. According to the 2000 Technology Alliance Survey, only 25 percent of the school districts can meet a “down-time” goal of two days or less. While this is quite low, this is better than the 14 percent able to meet the goal two years ago.

More tech demands with same or less level tech support. Next to funding, this is the subject that gets the most comments and consensus. Simply put, since the task force report in 1998, there has been an increase in hardware and technology demand but support levels have not kept pace. In addition, the information technology pool – both in the private and public sectors – has been shrinking and it has been challenging to retain technology staff when they can earn a substantially higher salary in the private sector. When equipment doesn’t work or teachers can’t get the help they need to navigate some software, everyone suffers.

School technology staff leaving for private sector. A number of school districts have seen technology support and leadership leave for better salaries in the private sector. When you lose a good IT person, you not only lose knowledge but technical history. There has been an effort to retrain teachers and classified staff for technology support, but again, the district runs a risk of having them leave for the private sector because they can’t pay them enough to stay.

What hasn't happened

Technology staff not considered in state staffing formulas. Technology personnel, like sign language interpreters, pose a salary dilemma for the state. They have a special skill and do not readily fall into the certificated or classified employee categories. To create a new category would pose a major policy change – something the education community and the Legislature aren't ready to tackle.

Schools don't pay market rate salaries for IT. With teachers fighting for an increase in wages, this one hasn't moved an inch. Enough said.

Consider this ...

School technology salaries will never be equal to the private sector. Until the challenges of school funding and teacher salaries are solved, K-12 technology salaries will never compete with the private sector.

Culture of collaboration and fairness. There is a strong need for creativity and sensitivity to this personnel dilemma of paying technology support staff at market rate. For those in the education community, "internal turmoil" exists with the notion of paying technology support significantly more (or at least private sector wages) when teachers are underpaid.

Stable team vs. revolving door of technicians. Bringing in a third party technician or consultant to address the barrage of technology needs poses all sorts of questions and concerns: quality of workmanship, and the inconsistency that comes with bringing in a revolving door of technicians versus a consistent employee. Consideration should be given to creating a system that stores technology history and records in an understandable way so a technology consultant new to the school or district can pick up where the last person left.

FUNDING PRIORITIES FOR TECHNOLOGY MUST BE ADDRESSED AND DONE SO ON A STATEWIDE BASIS

1998 recommendation: *The Education Savings Account or Fund 291 is an important resource for technology in the classroom and needs the ongoing support of the Legislature. The State's Incentive Savings program and the money this program makes available to our schools for funding technology in the classroom is an important resource and deserve continued support of the Legislature. Special consideration should be given in the allocation of these funds to districts with lower than average property values.*

What's happened

Higher education technology needs added to Fund 291. In one year since its establishment, Fund 291 went from something that had potential to something that was

swallowed up by other urgent education needs not restricted by 601. Originally, the fund was restricted to K-12 or common school needs. This past session, the account was amended for a particular higher education technology need: an on-line campus for community and technical colleges. This one-time investment spent \$4.5 million to upgrade the two-year system's platform for distance learning. The amendment only applies to the 2001-2003 biennium.

An allocation to the Technology Institute at the University of Washington (\$500,000 start-up money) was considered but not approved because the project would need ongoing support. Fund 291's revenue resource is built on reversion and it's difficult to predict year-to-year what monies will flow into this account.

Consider this ...

Account up for grabs? Given the squeeze on funding, initiatives, and pockets of scarce resources, this account seems vulnerable as legislators and others hunt for funding. Last session, the "temporary" amendment that funded the two-year online campus, proved this theory.

1998 recommendation: *The definition of "basic education" needs to include technology. A minimum increase of 5% in NERC(non-employee related costs) funding needs to be adopted to address basic technology maintenance and operations and replacement of obsolete equipment.*

What's happened

OSPI and SB 5906 propose technology be part of basic education. Last session, Terry Bergeson, Superintendent of Public Instruction, proposed including technology expenses in the state's funding formula for basic education – a proposal that was denied by the Legislature. Sen. Marilyn Rasmussen also addressed the issue of technology being in the definition of basic education with the introduction of SB 5906. SB 5906 established a task force to explore how technology should be integrated into the curriculum and how to fund it. The bill passed the Senate unanimously but died in the House Appropriations Committee. While cost shouldn't dictate definition, the fiscal impact is so immense that it most likely scared a lot of elected officials, particularly in a session where the transportation budget was left unsettled. Sen. Rasmussen plans to re-introduce her bill next session.

3-year rolling replacement of technology proposed part of Non-Employee Related Costs (NERC). Part of OSPI's budget proposal for the 2001-2003 biennium was including a 3-year rolling replacement of technology in NERC funding. NERC funding only received an increase for inflation in the 2001 session.

What hasn't happened

Technology not part of basic education definition and costs not reflected in NERC funding. The 2000 Legislature didn't pass Senator Rasmussen's bill that would have included technology in the state's definition of basic education nor OSPI's WAVES project. Technology costs have risen dramatically since computers were first purchased in the 1970s but these costs haven't been adjusted to reflect current pricing in NERC funding.

Consider this ...

It'll never happen. Most people don't see technology ever being included in the state's basic education definition. There are other underfunded programs – most notably, special education - that have been trying to do this for years. To talk about one is to talk about all of them, and, the discussion would be heated and intense.

Does technology really help? Some people remain unconvinced technology truly links learning with achievement. To date, there is no single source or data that establishes this link or coordinates all existing information on this hot topic. Until the point is proven, there are some who feel the emphasis should be on getting kids to standards.

1998 recommendation: *Private philanthropy from foundations and business should support technology projects and programs in our K-12 public schools that taken an integrated approach, addressing all four pillars. Private contributions to technology in our classrooms need to be part of a comprehensive and thoughtfully planned program that make sure that all of the required elements are present in order to ensure success. Private philanthropy can play a key role in helping develop model programs, but it can also exacerbate problems if the money is no wisely spent.*

What's happened

There have been a number of technology initiatives and programs funded by both local and national businesses, foundations and non-profit organizations for our state's public K-12 schools, teachers and students. From donating computers to providing professional development training, the effort, energy and resources have been tremendous since the release of the October 1998 report.

Consider this ...

The gap still exists. While the contributions of private philanthropy have been significant and appreciated, they are not enough to close the substantial gap that still exists in embedding technology into the curriculum.

CONCLUSION

Since 1998, technology has progressed even further and schools have been encouraged to incorporate these advances into student learning and achievement. Meanwhile, statewide initiatives and local economics are influencing the way the state and communities can spend money on education and technology. As the Technology Alliance's Education Task Force reviews its past recommendations and ponders steps to take in the immediate future, here are some things to consider with regard to the political, fiscal and cultural mindset of the technology, education and legislative communities.

Schools have moved beyond Internet access and computer-to-student ratios. Like the rest of the nation, nearly all of Washington state's classrooms are wired for Internet access. And, our state's computer-to-student ratio is healthy at 4:1. Now, the question of the day is: How is technology used to help students learn and achieve?

Look at the classroom, not just at the school. National and state data tend to look at statistics by school. If we truly want to help teachers and students, we need to look at what's happening in the classroom. Plans aren't worth anything if the teachers aren't delivering. Most students continue to use computers most in labs. Many experts will argue that classroom use is important because it's seamless and more regular rather than short, disjointed visits to a lab.

The culture of public education.

Slow to change. Change doesn't take place by storm in public education, whether it be K-12 or higher education. There are many parties to consider, including unions, faculty senates, and parents. The process tends to be very "Pacific Northwest" with plenty of opportunities given for hearings or discussions. And, of course, scheduling everyone to meet always takes time.

Fairness and collaboration. Teachers generally don't like to be placed in situations where they're competing with each other. This is where paying technology support personnel with higher salaries generates internal turmoil in the ranks. Educators – whether they are teachers, principals or administrators – thrive on situations where they learn with and from each other.

Teach as you've been taught OR thinking beyond the "5-credit, in your seat" class. For older higher education faculty, technology may as well be a monster. The thought of having to retrain so you can teach today's pre-service candidate who more than likely knows more about downloading, creating spreadsheets and designing web pages can be daunting. Higher ed knows it has to change to keep up with the demands placed on K-12 education. When you've done things the same way for a long time, change can be met with resistance, stubbornness or enthusiasm.

Funding perceptions. Regarding funding, reaction from people in the education community vary from “the sky is falling!” to “don’t worry, we’ll figure it out.” Those who have truly integrated technology into the curriculum have the same attitudes when it comes to their budgets. While there may be a set-aside budget for equipment, these districts don’t have a separate technology budget. Technology is everywhere. In some people’s opinions, Initiatives 732 and 728 moved money around and serve to compensate programs that received cuts from other funding, making it more difficult to make advancements in technology.

Leadership has not emerged. There seems to be a reliance on philanthropic efforts to save the day. There hasn’t been a single, central organization to coordinate the effort though there are certainly leaders who have commanded resources and efforts in their individual buildings, school districts or regional pockets.

Lack of reliable statewide funding. Part of school districts’ lament is that if you don’t upgrade your system, you fall behind in the race. Once you’ve trained everyone in this particular system, you’ve got to start all over again. Because of this, some don’t even try. It’s the nature of the beast. They’re reluctant to go back to the public, especially in economically distressed communities.

Computers are not often used as tools to help students better understand sophisticated concepts or visualize something in a new or different way. Larry Cuban argues that the use of computers for academic learning occupies less than 10 percent of teacher’s instructional time and suggests that only about 5 percent of teachers use computers imaginatively in their classrooms on a regular basis.

For students who don’t have access to computers at home, the digital divide still exists. This is where schools may become more creative and flexible in bringing technology to the community – and, in the end, more support.

References for Report Update

- Bob Armstrong, Director of Computer Technology, Onalaska School District
- Larry Davis, Executive Director, State Board of Education
- Lin Douglas, Director of Professional Education & Certification, OSPI
- Les Foltos, Director of K-12 Programs, Puget Sound Center, formerly with Seattle Schools and Smart Tools Academy
- Bernie Green, National Council for Education Statistics
- Don Hall, Director of Technology, Kent School District
- Lisa Holmes, Principal, Onalaska School District
- Kathy Klock, Director, Teacher Leadership Project, Bill & Melinda Gates Foundation
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