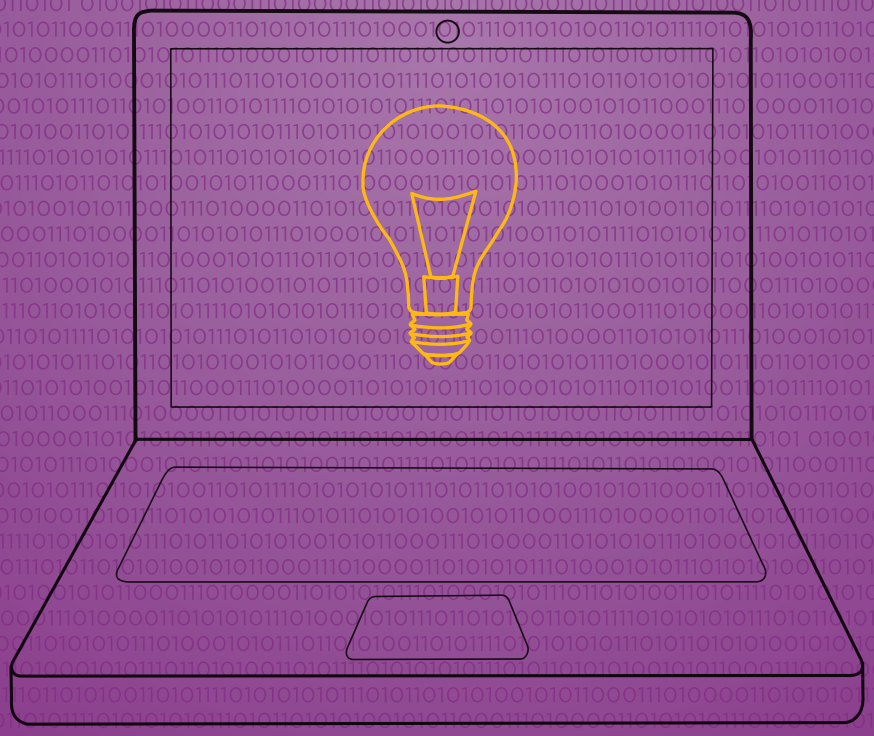
PROFILES IN INNOVATION

How the Enhancing Education Through Technology Program is Improving Teaching and Learning in America's Schools

National Coalition for Technology in Education and Training

A REPORT COMMISSIONED BY THE NATIONAL COALITION FOR TECHNOLOGY IN EDUCATION AND TRAINING AND PREPARED BY THE BERNSTEIN STRATEGY GROUP



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Introduction

Over its more than ten-year history, the federal Enhancing Education Through Technology (EETT) program has proven critical to educating America's children and providing them with the skills and tools they need to succeed in the 21st century. The technology learning initiatives profiled in the succeeding pages, each of which received significant funding from the EETT program, have utilized this important resource to transform teaching and improve student learning. While these districts' achievements are real and measurable, they represent a small fraction of the exciting work in K-12 education that EETT has fostered.

Although these profiled technology learning initiatives are geographically diverse, the stories of their EETT funded initiatives reflect remarkably common themes. Most serve students that lack access to technology and broadband at home and thus rely on their schools for interactive and engaging learning opportunities. Many face similar educational challenges—diverse student populations struggling to meet academic standards, insufficient access to core content courses, inadequate professional development opportunities and high-stakes test pressures—that digital resources and online learning play a role in overcoming. And all struggle with how to sustain their technology and training programs beyond the current funding cycle.

While the stories speak for themselves, specific common themes emerge when they are reviewed together:

- **Professional development is the hallmark of every successful educational technology implementation.** Regardless of how it is obtained or delivered—online or in person, peer-to-peer or through technology specialists—appropriate professional development on how to incorporate technology into the curriculum is necessary in order to transform pedagogical practice. A Montana technology specialist best captured professional development's value when she termed it the "very heart" of her state's learning technology program.

- **Greater student technology access, including one-to-one laptop initiatives, well-equipped classrooms, digital content and software applications, and distance learning opportunities, translate into increased student engagement and measurable academic improvement.** Teachers and administrators repeatedly stress in these profiles how ready access to and use of technology has led to improved academic achievement. For example, school administrators

in New Mexico observed that students in classrooms that incorporated more technology earned higher scores on state exams.

- **Technology has the ability to reach all students—no matter where they live, what language they speak, how wealthy they are and whether they have physical or cognitive disabilities.** As these profiles bear out, technology had as profound an impact on students living in urban Los Angeles as on students from rural Iowa; it made as much of a difference for Native American students in Montana as it did for Hispanic students in New Mexico; and it improved academics as much for at-risk students in Cincinnati as it did for low-income students in Yakima. As one Ohio educator explained, "[With technology] students are able to work at their own pace and ability level on programs without the fear of competing with classmates for completion or success."

- **Technology programs, including equipment, applications, professional development and IT support, require sustained investment.** While some of the districts featured here have been successful in using federal EETT funds to leverage additional support to maintain and even expand their technology initiatives, others like Montana and Nevada face the unhappy prospect of ending their programs when their EETT stimulus funding runs out in September 2011. As a Washington educator stated: "All the things that we know we need to do, we can't do without funding. EETT makes doing those things possible."

About the Enhancing Education Through Technology Program (EETT)

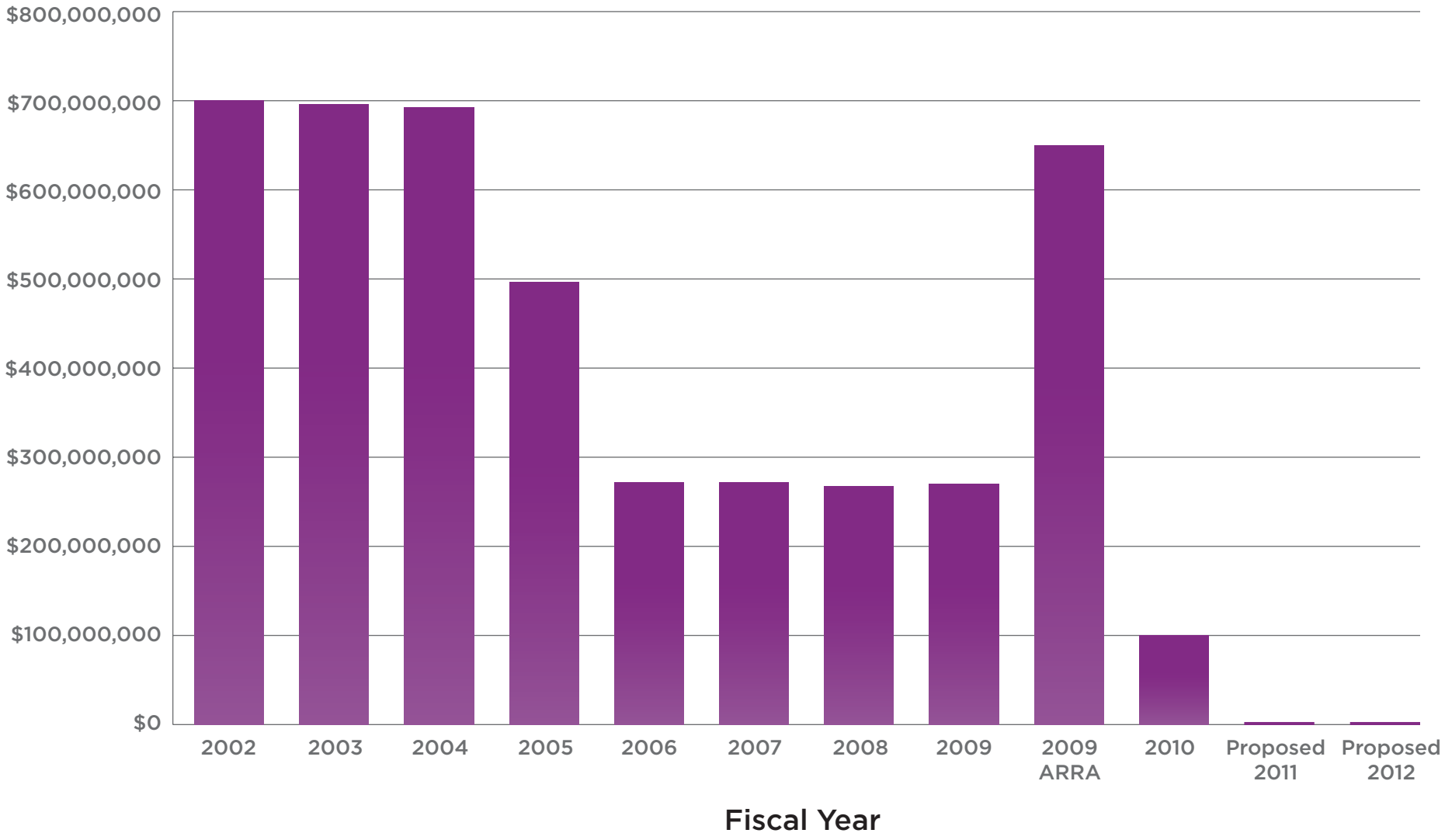
The Enhancing Education Through Technology Program (EETT) is the only U.S. Department of Education program directed to improving the capacity of our nation's schools for technology-based innovation. Congress authorized EETT as Title II-D of the Elementary and Secondary Education Act (when the law was reauthorized in 2002 as the No Child Left Behind Act). EETT provides school districts, particularly those serving low income students, with the resources necessary to improve teaching and learning through the integration of technology into the classroom. Congress supported EETT because it recognized that technology has an important role to play in achieving key NCLB goals, including raising student achievement, ensuring high-quality teaching and increasing parental involvement.

EETT allocates funds to states based on the Title I formula. States distribute 50% of funds according to the Title I formula and 50% via a competitive grant process to eligible local entities. States may retain 5% of the funds for state activities. As of FY06, states have the flexibility to allocate 100% of EETT funds by competitive awards to eligible local entities.

While districts must reserve at least 25% of funds for professional development, recent studies indicate that most grantees use far more than that percentage. EETT professional development focuses on training teachers to effectively integrate technology into their curricula, including using data to differentiate instruction and to better engage students.

EETT was authorized at $1 billion per year, and funded at $700 million in its first three years However, between FY06 and FY09, annual funding was cut to just $267 million and, in FY10, it was reduced further to only $100 million. While EETT received $650 million through the American Recovery and Reinvestment Act (ARRA), the Obama Administration's FY11 and FY12 Budget Proposals eliminate EETT.

EETT FUNDING HISTORY



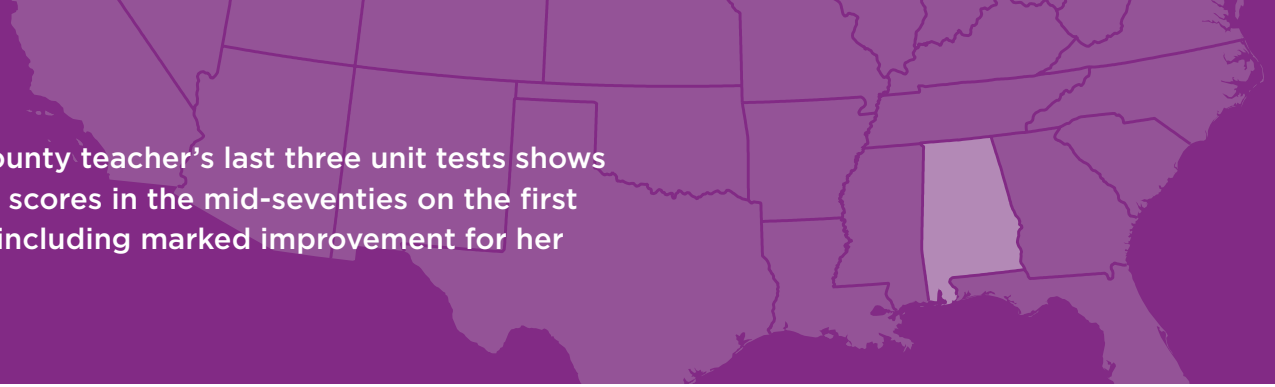
ALABAMA:
BALDWIN COUNTY SCHOOLS

In a district where some schools have as high as 80% participation in the federal Free and Reduced Price Meal program, the opportunity to spend significant funding on an educational pilot program is an infrequent occurrence. But when Alabama's Baldwin County Schools received $544,000 in federal Enhancing Education Through Technology (EETT) funding between 2007 and 2010, it chose to implement a pilot of the nationally renowned and highly successful eMINTS comprehensive technology program. Time and test scores have demonstrated that Baldwin's decision was the right one.

Launched in Missouri in 1997 and now deployed in 11 states—Alabama, Arkansas, Delaware, Illinois, Maine, Minnesota, Missouri, Nevada, New Jersey, Oklahoma, Texas and Utah—the Enhancing Missouri's Instructional Networked Teaching Strategies

(eMINTS) program blends state-of-the-art technology with intensive professional development for teachers. Instructional strategies focus on inquiry-based teaching, higher-order thinking skills and cooperative learning. In Missouri, an eMINTS classroom repeatedly showed student achievement that was 10% higher than control classrooms at the same school. Additionally, after six years of eMINTS, special-education students at a low-income Title I school reduced the achievement gap by 50% in fourth grade mathematics scores. Another eMINTS benefit is increased teacher retention, with one rural district in Missouri reporting teacher retention rates going from 76% percent to 98% after the first year of eMINTS.

Bearing these facts and statistics in mind, Baldwin embarked on its eMINTS pilot with high hopes. With its EETT funding, it implemented eMINTS in sixteen classrooms and used $50,000 in federal Title I funds to add another two classrooms to the eMINTS cluster. All of these federal dollars convinced state funders to support fourteen more eMINTS classrooms through $479,000 in competitive grants. Adding more classrooms to the existing 32 in Baldwin is contingent on new funding becoming available.



RESULT: An analysis of one Baldwin County teacher's last three unit tests shows steady improvement from average test scores in the mid-seventies on the first exam to as high as the upper eighties, including marked improvement for her special education inclusion class.

"When I showed my students their score improvements, they were so proud! I knew this was the way to teach and I am so glad that I have this opportunity to have this technology and, moreover, the proper strategies to use it for my students."

Baldwin's eMINTS classrooms are truly technology-rich: each incorporates student laptops/computers (with one computing device for every two students); a teacher laptop computer; an interactive whiteboard and LCD projector; a color printer, digital camera and scanner; wireless Internet access; a network printer; a document camera; and educational software. Immediately upon Baldwin County's introduction of the eMINTS pilot, teachers noticed a big change in their students. Sixth grade teacher Vicki Gripp observed after the technology's introduction in her classroom, "My students are so much more engaged."

Rigorous professional development through eMINTS also has led to significant practice changes. To be a certified eMINTS teacher, educators must undertake 230 hours of face-to-face teacher training over a two-year period, plus coaching and mentoring visits once a month from eMINTS specialists. One eMINTS teacher noted, "You move from giving/telling information to more of a facilitator. It's not like getting up and lecturing, or reading it from textbooks."

According to Baldwin Instructional Technology Coordinator Margaret Blake, the improved classroom dynamics fostered by eMINTS training and technology-rich classrooms is contributing to improved learning, particularly for the most vulnerable members of Baldwin County's student body. Sixth grade Modern US History teacher Cindy Bay concurs, pointing to demonstrable change in her students' academic performance. An analysis of her last three unit tests shows steady improvement from average test scores in the mid-seventies on the first exam to as high as the upper eighties, including marked improvement for her special education inclusion class.

The eMINTS experience is best summed up by Ms. Bay: "When I showed my students their score improvements, they were so proud! I knew this was the way to teach and I am so glad that I have this opportunity to have this technology and, moreover, the proper strategies to use it for my students."

CALIFORNIA:
LOS ANGELES UNIFIED SCHOOL DISTRICT

In California, Los Angeles Unified School District (LAUSD) has used Enhancing Education Through Technology (EETT) funds to improve its struggling middle school students' mathematics and science test scores by implementing a comprehensive technology initiative. First developed in 2003, the Integrating Mathematics and Science through Technology (IMaST) program has consistently focused on providing high quality, comprehensive and ongoing professional development for teachers and administrators to support integrating technology into teaching and learning at the middle school level. This consistent and targeted funding has yielded tremendous results: significant progress in mathematics and science proficiency rates for participating middle school students.

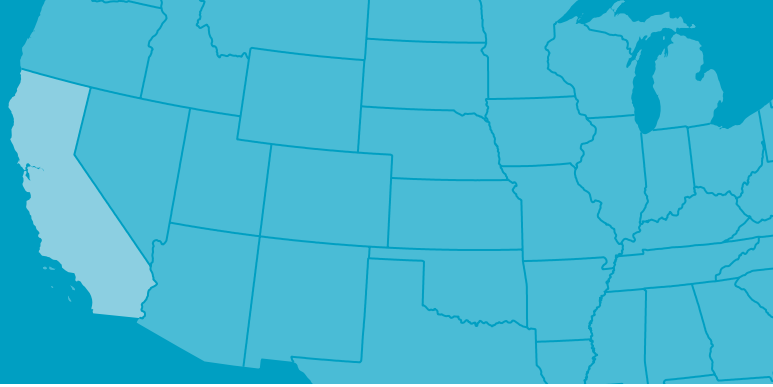
Located in urban Los Angeles, LAUSD enrolls over half a million students, most of whom are economically disadvantaged. Ninety-nine percent of students in the district, including 150,000 middle schoolers, were eligible for the federal Free and Reduced Price Meal program in the 2009-10 school year. Additionally, 31% of LAUSD's students are English language learners.

Funded by over $26 million in competitive EETT funds received by LAUSD since 2003, the IMaST program has served over 65,000 middle school students in one third of its middle schools by infusing technology into classrooms to improve student achievement, technology literacy and technology proficiency. Through the program, schools have received over 7,000 laptop computers, which are rotated among sixth, seventh and eighth grade mathematics and science teachers via mobile carts at the 35 target middle schools. Participating teachers also receive a laptop computer and have access to other technology resources, such as electronic white boards, student response devices, projectors, digital cameras and other technologies.

"IMaST has been a great benefit to LAUSD middle schools. Teachers showed gains in the use of technology. Equally important was that students were more engaged in learning because of the use of the technology."

More importantly, the IMaST program has provided two to three years of intense professional development focusing on using technology to communicate, to solve problems and to access, create, integrate, evaluate and manage information to improve

RESULT: Each year since 2005, the proficiency levels of LAUSD's IMaST middle school students on math and science state exams have improved by an average of 14.8%. Moreover, during the same time frame, LAUSD reports a 22% gain in technology literacy among IMaST middle school students.



and enhance learning of state content standards. During this period, each participating school is provided a lead coach whose role, according to LAUSD Chief Technology Director Dr. Themy Sparangis, is to "work on a daily basis with teachers to transform classroom practice and integrate the use of the technologies provided by the grant." Concludes Dr. Sparangis: "This piece is key to sustained use of technology beyond the life of the grant."

Aside from the technology-rich classrooms and the training, IMaST's success is attributable to the fact that it requires buy-in from the faculty, staff and administration of each school before the project is initiated. Each participating school must also provide "a coach team," which includes the school's math coach, lead science teacher, teacher librarian and technology coordinator, who work with the lead coach to drive innovation at the school during prep periods, staff meetings, after school training sessions, summer academies and other intervals.

The impact of the IMaST project has been tremendous. Each year since 2005, the proficiency levels of LAUSD's IMaST middle school students on math and science state exams have improved by an average of 14.8%. Moreover, during the same time frame, LAUSD reports a 22% gain in technology literacy among IMaST middle school students. The IMaST program also has had a significant impact on teachers: since 2005, there have been significant gains in technology proficiency, aligned to National Education Technology Standards, among target teachers. As an added benefit, IMaST schools report teachers in other curricular areas have increased their integration of technology into instruction.

Reflecting on IMaST's success, Dr. Sparangis drew attention not just to test score increases but to growth he has observed in student and teacher technology skills, both critical to future academic and workforce success: "IMaST has been a great benefit to LAUSD middle schools. Teachers showed gains in the use of technology. Equally important was that students were more engaged in learning because of the use of the technology." When added together, these technology outcomes lead to improved math and science learning for LAUSD's IMaST middle schools.

CONNECTICUT:
WINTERGREEN INTERDISTRICT MAGNET SCHOOL

Connecticut's Wintergreen Interdistrict Magnet School, a K-8 school with an integrated liberal arts/technology focus, is using $140,000 it received through Enhancing Education Through Technology (EETT) stimulus funding to facilitate teaching its mostly urban students about ecology and the environment. In concert with its year-long "Green, Green Wintergreen" theme, the school used the EETT dollars to upgrade its classroom technology and engage its students with more interactive lessons to make the green theme come alive. As Carol May, Wintergreen's technology instructor, observed: "Interactivity is something the kids are very used to. Chalk and blackboards are the way that we used to teach. Today, kids are demanding interactivity."

Since most of Wintergreen's 600 students hail from fairly urban areas, including Hamden, New Haven, Wallingford, Meriden and Woodbridge, many are unfamiliar with gardening, harvesting and other ecological concepts. Thus, the school's eco-curriculum featured lessons for kindergartners and first graders on composting and curriculum for older students on ecological footprints, water quality and animal migration. EETT stimulus funds outfitted all classrooms with interactive whiteboards, projectors, conferencing equipment and online software packages to help animate the eco-lessons. For instance, interactive whiteboards allowed students to virtually dissect plants and learn their basic anatomy, as well as explore what makes up compost. The most compelling use of EETT dollars, though, may be the school's purchase and installation of cameras to record video and still photographs of plant and wildlife activity in the school's indoor and outdoor gardens. Some

Wintergreen students took time lapse video of their gardens and spliced it together to show plant growth; others monitored the bird cameras to take inventory on the number and types of birds around them. It is clear that the school's Green, Green, Wintergreen eco-curriculum is not just teaching students environmental and ecological content but also is imparting to them technology literacy skills they will need in their careers—a true educational win-win.

Teachers have also benefitted from the influx of new technology at their school. Starting with the first day

RESULT: Administrators are already noting that the school's technology initiative has led to significant progress towards its goal of further integrating technology into teaching and learning. They also find above average progress towards the goal of students improving technology literacy.

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of school, teachers participate in continuous professional development throughout the year with the technologist in residence. Moreover, teachers receive training on how to integrate technology into all aspects of their teaching, not just the "green" theme. For example, teachers learned how to coordinate GPS devices and Google maps, which allowed them to show their students how to locate and track on a digital map dog sled teams finishing Alaska's Iditarod race. Fifth grade teacher Mary O'Rourke sang the praises of technology enhanced learning: "It lets me takes risks that I may not have tried before. I feel more confident in my teaching. It's so much more accessible. I am not sure I remember how to teach without it."

Although Wintergreen is only mid-way through the academic year, administrators are already noting significant progress towards the school's goal of further integrating technology into teaching and learning, stating that they are "very pleased with the progress teachers are making with collecting all of their experiences within a content management system." They also find above average progress towards the goal of students improving technology literacy, citing the fact that students are creating their own technology profiles and online projects.

Final results on these goals and the central goal of increasing student achievement will have to wait "because many of the gardening activities cannot take place until spring."

Wintergreen's school-wide technology accessibility and interactivity would not have been possible without federal EETT funding. Now that the technology and professional development is in place, Wintergreen can sustain its green theme for another year and plans to do so. However, "without the grant and the funding to provide ubiquitous technology throughout all the classrooms, we never would have been able to fully move our school into a 21st century learning environment. There would have always been a digital divide between classrooms: those that had it and those that did not," stated Carol May. "Now all students can be engaged in learning."

IOWA:
CAM HIGH SCHOOL

Located in the middle of America's Heartland between Des Moines and Omaha, CAM High School in Anita, Iowa, is already technology focused. CAM's energetic and tech-savvy principal, Dominic Giegerich, equipped all of his students with laptops three years ago and is now working hard to bring even more digital-age resources to his school through his work on a statewide digital content repository that is set to roll-out soon. Funded via a $3.2 million grant received from Enhancing Education Through Technology (EETT) stimulus funds, the statewide repository will provide all of Iowa's schools with state-aligned digital core content, extensive technology professional development and a standardized course credit recovery system. When the repository is fully populated and operational, it will help Iowa's small and rural schools, like CAM High School which serves only 135 students, to overcome low student enrollments and teacher shortages and deliver more complete and interactive curricula.

"This project has the potential to provide the exact content necessary to move our schools forward very quickly. The students in our district will enjoy a rich curriculum that can be accessed at any time and differentiated to their learning pace."

Giegerich is a board member of the state-wide district consortium that received $2.75 million of the EETT stimulus funds to create the repository (a consortium from Des Moines received the remaining funds and is working on a parallel track). He is well aware of the challenges Iowa's rural schools face, particularly their difficulty attracting qualified teachers and inability to provide as broad a range of courses as urban schools. The repository's initial purchase using EETT stimulus funds of core curricular courses in subjects such as Geography, Algebra, Physical Science and English will help ensure equitable educational opportunity throughout the state. Each of these courses will include engaging content animated by full-motion videos, textual context, lesson plans and assessments. While the repository's courses are intended for use in the classroom, they may have additional applications for students too ill to attend school, or in the event of natural disasters and pandemics. At CAM High School, Giegerich anticipates that many of his teachers will incorporate the repository's new resources into their blended virtual and classroom teaching and that students may even be able access the same resources on their laptops.

RESULT: The EETT funded statewide repository will provide all of Iowa's schools with state-aligned digital core content, extensive technology professional development and a standardized course credit recovery system.

A significant part of the Iowa statewide consortium's grant is devoted to preparing teachers to make the best use of the repository. As such, two two-day professional development training sessions are slated for the spring and summer of 2011. These sessions will show teachers how to navigate the repository and integrate its wide variety of tools, projects and content into their curricula. The training will also assist teachers in learning how to become fully online educators who are able to deliver otherwise unavailable courses to Iowa's rural students. In separate summer sessions, some Iowa Social Studies teachers will be creating content for the repository, which will then be available throughout the state. According to Giegerich, 140 teachers have already signed up for the April and July round of trainings; four of CAM High School's twenty-one teachers are planning to participate.

A small but important project within the repository is the establishment of a standardized credit recovery system. This will ensure that districts have consistent credit recovery standards and easily transferable data, something that is lacking currently as districts use different credit recovery products. All Iowa schools will benefit by not having to expend their own funds on separate systems. Giegerich, for instance, expects that a handful of his own students will likely take advantage of this standardized credit recovery system when it comes online later this year.

It remains uncertain whether Iowa will be able to expand the repository further once EETT funds disappear. While the Iowa State Board of Education has taken steps to prioritize online learning and the Iowa legislature passed legislation that allows districts to use textbook funds to purchase

digital content and computing devices to deliver that content, continued federal or state funding is needed to fully utilize this new resource. For Dominic Giegerich this is an investment worth making: "This project has the potential to provide the exact content necessary to move our schools forward very quickly. The students in our district will enjoy a rich curriculum that can be accessed at any time and differentiated to their learning pace."

MINNESOTA:
ZUMBROTA-MAZEPPA DISTRICT

Minnesota's Zumbrota-Mazeppa District, a small district serving only 1,100 K-12 students, has maximized the modest $55,426 in Enhancing Education Through Technology (EETT) grant funding it received last year by investing in technology tools, digital content and teacher training to deliver its students a world-class education. Coming at a time when the district saw its state technology funding reduced and its previous corporate support evaporate, EETT funding has proven crucial to furthering its educational objectives.

Located in rural, southeastern Minnesota, Zumbrota-Mazeppa had struggled to provide its students with a wide array of course offerings. But that changed when the district used EETT dollars in 2010 to purchase a server that hosts online learning courses, thereby allowing it to expand its curricular offerings. Today, the

district offers 15 instructional television (ITV)/hybrid courses, including eight otherwise unavailable Advanced Placement courses. Further, the district reduced the cost of this EETT-funded program by splitting the course costs with two neighboring districts—Kenyon Wanamingo Schools and Goodhue Public Schools—and providing access to all of 15 ITV courses to students from all three districts. Early indicators suggest that students are eager to take advantage of these distance learning opportunities: approximately 75 students in each of the three participating districts have taken ITV courses each semester. ITV Advanced Placement courses also benefit the Zumbrota-Mazeppa district because it encourages students to seek college credits without reducing funding for the district, which occurs when students choose to take post-secondary credits elsewhere.

In addition to expanding its students' horizons through distance learning, the district also used EETT funds to invest in technology to ensure that its students are 21st century career-ready. It used EETT funds to support career-oriented classes such as web design, computer graphics and photography to great effect. Furthermore, it used EETT funds to transform an existing construction course into a STEM course that includes hands-on, real-world applications. Prior to receiving EETT funding, the district's construction

RESULT: The district used EETT funds to transform an existing construction course into a STEM course that includes hands-on, real-world applications. Students now use software to design home plans.

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class taught students how to build a house from existing blue-prints drafted by the instructor at the high school. After using EETT funds to purchase an AutoCAD architecture program, a software application for 2D and 3D design and drafting, the course expanded to teach students how to use software to design home plans and helped develop students' skills in engineering and technology. According to district Technology Coordinator Grant Voth, "This program enabled students to develop skills that relate directly to possible careers in this area."

Finally, Zumbrota-Mazeppa used its remaining EETT funds to develop small, collaborative Professional Learning Communities (PLCs) to assist teachers in technology integration and promote improved learning. Through PLCs, the district grouped together educators with similar needs, interests, teaching assignments and grade levels and provided them appropriate training on interactive whiteboards, computer graphics and web design. Additionally, the district facilitated staff sharing of technology skills, resources, materials and curriculum through the initiation of a staff development online portal. The PLC approach seems to be working. Surveys indicate that more teachers are using technology in their classroom, especially the district's K-6 teachers. Grant Voth traced this transformation:

> "For our K-6 teachers, who were comprised of our older staff and had low technology skills, we took a targeted approach to skills development. We made sure to build in time for them to develop real working materials to take back to their classrooms and for them to collaborate with each other. Today, the same teachers who barely used the computer in class are now using the interactive white boards and projection systems many hours each day, resulting in students who are also more excited about learning."

MONTANA:
PRAIRIE EDUCATION SERVICE AGENCY

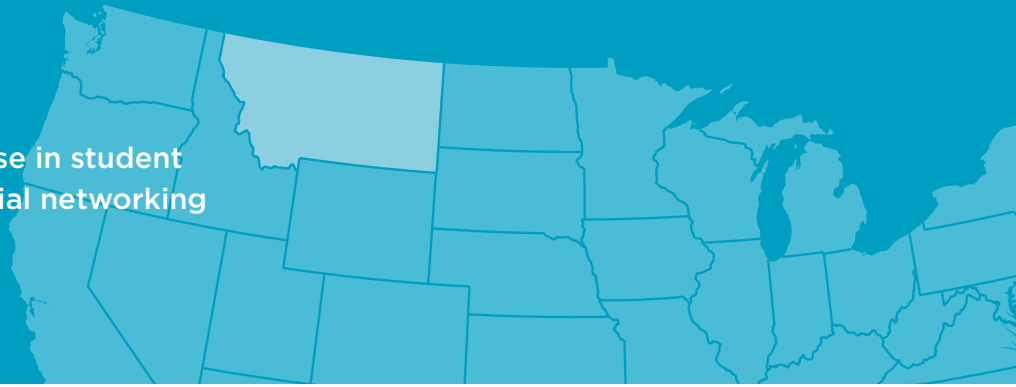
The State of Montana has used the $3.2 million in Enhancing Education Through Technology stimulus funding that it received to launch a two-year statewide technology initiative. Called NEW SLATE (New Expectations Will Stimulate Learning through Applying Technology to Enhance achievement), this initiative subdivides Montana into five geographic regions and provides funding for different projects in each. For extreme eastern Montana, where low-income and underachieving American Indians comprise the bulk of the student population, NEW SLATE represents a chance for teachers to use technology to develop new strategies and skills to engage these struggling learners.

There is no question that the NEW SLATE Prairie Education Service Area (PESA), in the eastern part of Montana, faces significant challenges. Poplar School District, which hosts PESA, is a PESA high-need district, where 95% of the students are American Indians and more than 85% receive federal Free and Reduced Price Meal program support. All four of the district's schools have been identified for restructuring for failing to make academic progress, with its middle school labeled as such for the past nine years. On Montana's 2010 state exams, Poplar Elementary's students scored 34 points below the state average in reading and 42 points lower than the state average in math. These problems are compounded by the fact that eastern Montana is very rural, making professional development opportunities for its faculty and staff few, far between and expensive.

Professional development, focused on improving teacher technology literacy, lies at the heart of PESA's $600,000 NEW SLATE grant. The PESA Region has used its NEW SLATE funding to employ a regional technology specialist, Libby Solberg, and a technology integration coach, who deliver face-to-face, online and blended professional development to the region's teachers. Together, they have travelled throughout eastern Montana delivering all-day trainings on new instructional strategies facilitated by technology. The new integration coach has also provided just-in-time, right-in-the classroom training for the PESA region's teachers. Libby Solberg observes: "For many teachers, just having that support person there has made them willing to try to use more technology with their students. SLATE has given those teachers the most effective professional development possible: need-based, job-embedded and ongoing."

The impact of NEW SLATE's concentration on professional development is already evident in Poplar's schools. For example, Poplar

RESULT: One high school teacher observed an immediate increase in student homework rates after introducing his class to a free and safe social networking site. In some cases, the turn-in rate increased as much as 60%.



"Technology changes so rapidly and is so vast that ongoing professional development is a must."

High School teacher Kevin Zoren learned about a free and safe social networking site during an all-day training and, by the next morning, was working with his students on the site. Now, Mr. Zoren's students post messages to each other that he monitors and edits. "Once I began using the program," stated Mr. Zoren, "I saw an immediate increase in student homework turn-in rates. In some classes, the turn-in rate increased as much as 60%. Perhaps even more importantly it has drastically increased my ability to communicate with students and parents. In short, this has revolutionized my classroom and these changes would not have been possible without the support from NEW SLATE." From Libby Solberg's perspective, Mr. Zoren's experience with SLATE is not unusual: "Sometimes what a teacher needs is exposure to a tool for a particular instructional strategy, the time and encouragement to try it out and a place to reflect and perfect its use. Such was the case with Kevin Zoren."

Although the gains made by the NEW SLATE grant are encouraging, the program will shut down in September 2011 without additional federal funding. Mr. Zoren summarized NEW SLATE's value to students: "I cannot stress the importance of such grants enough – particularly in rural communities which absolutely need technology integration to keep students connected, Native American or otherwise, to the greater community of learners in our state and to ensure they are adequately prepared to succeed in today's ever evolving technologically enhanced world." Libby Solberg summarized NEW SLATE's importance to teachers: "Technology changes so rapidly and is so vast that ongoing professional development is a must."

NEVADA:

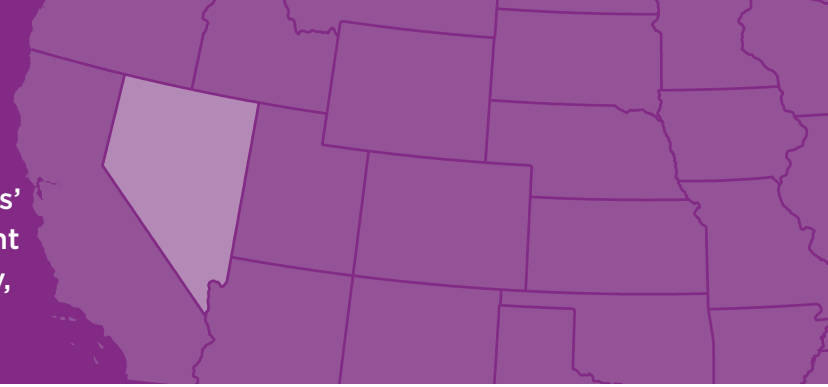
PATHWAY TO NEVADA'S FUTURE PROJECT

The Pathway to Nevada's Future project ("Pathway Project") is a statewide initiative that, after only one year of operation, is helping Nevada's rural educators make great strides in changing teacher practice by integrating technology into learning. Funded by $4 million from Enhancing Education Through Technology (EETT) stimulus grants, the Pathway Project equipped classrooms with laptops and mobile handheld devices and designed, developed and launched a two-year, multiple modular online professional development course for teachers and administrators. While early evaluations show the program's success and tremendous promise, more funding is needed to sustain it.

While the Pathway Project is open to all of Nevada's educators, it is unique in its commitment to delivering technology tools and training to Nevada's rural educators. Thirty percent of Nevada's students live in rural or sparsely populated towns far from the growing metropolis of Las Vegas and their teachers must contend with vast distances to attend in-person professional development courses. Recognizing that challenge, the Pathway Project's designers created professional development training that is available online and on demand. The courses are broken up into four easily digestible modules that educators take over the course of two years. In the first year, project participants learn about resources and educational technology tools appropriate for different classroom settings and how to use those tools in their classrooms. The second year of the program is focused on encouraging teachers to work together online to create and implement lesson plans that allow students to work collaboratively on projects and on assessing how well students meet project learning objectives and collaborate online. The framework for the course is the Nevada Educational Technology Standards, state standards adapted from the International Society for Technology in Education's National Education Technology Standards for Students and focused on what students should be able to know and do with technology.

Although the first class of educators, which included 180 teachers and administrators representing all of Nevada's 17 school districts, is still completing the second year of the program, the program's qualitative and quantitative impact is already clearly discernible. An evaluation of the first year of the program, conducted by University of Nevada, Las Vegas Professors Neal Strudler and P.G. Schrader, found that "the project is having an impact on teachers' technology integration" and that "outcomes analyzed thus far

RESULT: An evaluation of the first year of Nevada's technology professional development program found that "the project is having an impact on teachers' technology integration" and that "outcomes analyzed thus far show significant changes in teacher attitudes, self-efficacy and TPACK [Technology, Pedagogy, Content and Knowledge]."



show significant changes in teacher attitudes, self-efficacy and TPACK [Technology, Pedagogy, Content and Knowledge]." The evaluators concluded: "Most importantly, these areas are of particular interest because they imply a solid foundation for change in classroom practice."

The findings of this first year evaluation of the Pathway Project are buttressed by testimonials from front line educators participating in the project. "Now I look at iPods and the use of Twitter in educational terms. Before I started this project I had no clue as to the educational possibilities of such things," said Nevada teacher Kathy Buckmaster. "Teachers have to be willing to learn how this technology can be integrated if we ever expect to move into a true 21st century learning environment." Other teachers were energized by the collaboration opportunities facilitated through the project. As one participant stated, "I like the idea of working with someone clear across the state."

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While Professor Schrader and several colleagues observed in a separate case study of the project's first class that the Pathway Project had an "excellent potential to create viable models for professional development that impact student learning with technology," they also recognized that absent additional funding it is doubtful that a second class of educators would matriculate. They also noted that EETT funding is finite and "provides technical support, infrastructure and support for facilitators. Without this support, future implementations of the professional development would clearly be difficult and will have to be reshaped according to available resources." In sum, the Pathway Project has begun to show impact, but will require additional federal or state investment to translate its initial successes into long-term accomplishments.

NEW MEXICO:
CHAPARRAL MIDDLE SCHOOL

Chaparral Middle School is an isolated middle school in the Gadsden Independent School District that serves some of the most underprivileged students in rural New Mexico. In the surrounding community, fewer than 60% of adults have high school degrees, many residents are English language learners, and the median household income level reposes at $27,400. Chaparral students are academically challenged, with only 19.5% attaining proficiency in statewide math exams in 2008 and years of declining math proficiency scores prior to that date. The establishment of a one-to-one laptop initiative, fueled by a two-year $100,000 grant from the Enhancing Education Through Technology (EETT) program, has helped turnaround Chaparral and put its students on the path to academic success.

Chaparral initiated its one-to-one laptop pilot in 2009, using the bulk of its EETT grant money to purchase 200 laptops for its math classes. Chaparral also invested its EETT funding in applied skills-based software programs that offered differentiated instruction for students with varying skill sets. Additionally, it devoted EETT funding to assisting students needing remedial help by providing them access to programs geared to their specific needs not only during math class, but also during lunch and before and after school. Further, Chaparral directed some of the EETT funds towards students in special needs classes, supporting virtual manipulative tools, tactile learning and accessible software.

To bolster the pilot's chances of success, everyone at Chaparral sacrificed. During tough economic times, the district found an additional $37,000 to provide Chaparral's math teachers with technology training. And Chaparral's teachers gave up their weekends or, in some cases, parts of their summers to attend conferences and workshops where they learned how to integrate student use of laptops into their classrooms and lessons.

Chaparral's investments of time, effort and money in support of the one-to-one laptop initiative are already paying off. After repeatedly being designated by the state as low performing, Chaparral saw significant gains on math state exams after the pilot's launch. In the 2009 and 2010 New Mexico Standards-Based Assessments, the number of Chaparral students ranked proficient or above increased by approximately 7% and 4%, respectively. Math proficiency for Chaparral's Hispanic students, who are the largest ethnic group in the school, improved from 18.7% in 2008

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to nearly 30% by 2010. According to school administrators, "classrooms that incorporated technology to a greater degree" earned higher scores in the state's Measures of Academic Progress for mathematics.

Aside from significant academic gains, district leaders indicate that the laptops, software and additional training are helping improve the teaching and learning dynamics at the school. More than 60% of Chaparral's teachers now incorporate technology into their daily lessons, with some using technology every day. Cheryl Coyle, the district's coordinator for Math and Science Instruction, found that "classrooms utilizing technology show a dramatic increase in student engagement. Students are more excited about learning math and participating in the lesson."

"[C]omputer-based learning gave our students the opportunity to be self-directed, set personal goals, work independently, participate actively in their learning and develop a love of learning through technology that will facilitate them becoming lifelong learners."

Another measure of the value of EETT funding is its importance in serving as seed money to leverage additional dollars for the school district. In the case of Gadsden ISD, the district used an additional $40,000 from the federal Schools in Need of Improvement program to purchase supplemental technology such as interactive white boards, document cameras and projectors. Additionally, based on the success at Chaparral, the state provided Gadsden ISD with $400,000 to expand the program to its other middle schools.

Cheryl Coyle best summarized the one-to-one laptop project's success: EETT funds resulted in "computer-based learning [that] gave our students the opportunity to be self-directed, set personal goals, work independently, participate actively in their learning and develop a love of learning through technology that will facilitate them becoming lifelong learners."

OHIO:
ROSELAWN CONDON ELEMENTARY SCHOOL

The students of Cincinnati's Roselawn Condon Elementary School face a number of barriers to academic success. They reside in a high poverty area, with 86% eligible for the federal Free and Reduced Price Meal program and 37% deemed students with special needs or disabilities. Their state test scores lag behind those of their peers, with the school placed on Academic Watch by the state in 2008. Additionally, the majority of students at Roselawn lack access to technology tools at home. However, approximately $210,000 in Enhancing Education Through Technology (EETT) competitive grants funding, received in 2008-2009, allowed the school to acquire the tools—including laptops, learning management systems, interactive white boards, camcorders and digital cameras—that have helped its students beat the odds and achieve.

The new technologies made available to Roselawn because of EETT funds have been a revelation for its teachers and translated into significantly improved learning, particularly for its special needs students. As part of its planning for EETT grants, the school decided to focus EETT funds on providing its special needs students a more accessible learning environment. First, it established accessibility goals, including providing standards-based learning and raising staff/student technology skills to 21st century levels. Then, it purchased technology that had shown promise in meeting the needs of all learners. According to Roselawn teacher Michelle Campbell, the assistive technologies funded through EETT, such as interactive white boards and specialized software, allow her to "identify the state standards and indicators that my students need to work on at a specific time."

She also noted the positive effects of new technology on her own performance: "[Technology] has opened up a new world of discovery for me, allowing me to let the students see a different way of solving problems or just a different way of seeing them taught." A Roselawn intervention specialist concurred, stating that her "teaching and special needs students' learning have changed dramatically" because of technology. She used to have to read every story to one of her students but, with the deployment of new software, the student is "captivated" by online interactive stories, "doesn't leave the computer lab at lunch time," and

RESULT: Over the course of two years, the school's special needs second grade students' test scores jumped from 52% to 64% in reading and from 41% to 64% in math. Over the same time span, special needs third graders improved by 15 percentage points in reading, from 63.3% to 78.6%, and 4 percentage points in math, from 69.4% to 73.8%.

"is now able to push buttons on his specialized keyboard and mouse."

Roselawn's implementation of technology has yielded more than accolades and anecdotes. Over the course of two years, its special needs second grade students' test scores jumped from 52% to 64% in reading and from 41% to 64% in math. Over the same time span, special needs third graders improved by 15 percentage points in reading, from 63.3% to 78.6%, and 4 percentage points in math, from 69.4% to 73.8%.

For those Roselawn students at high risk of failure or dropping out, technology purchased through EETT has also proven to be a boon. Time and again, Roselawn teachers cited the value of EETT financed software and learning management systems that allowed more individualized learning and practice for their high-risk students. One Roselawn teacher indicated: "By using more technology in the classroom, I was able to receive a diagnosis of each individual student's ability level and receive prescribed lessons from a learning management system. Therefore, each child had individual work that met his/her special needs (re-teach, teach, or accelerate) and kept him/her engaged in learning." Another teacher stated: "Students are able to work at their own pace and ability level on programs without the fear of competing with classmates for completion or success." Like the school's special needs students, its high risk students' embrace of technology have led to academic gains: the passage rate on 6th grade assessments grew from 17% in 2008-09 to 65% the following year.

"[Technology] has opened up a new world of discovery for me, allowing me to let the students see a different way of solving problems or just a different way of seeing them taught."

The personal and academic gains of Roselawn's students after the deployment of EETT subsidized technology speak for themselves. It cannot be overlooked, however, that the entire school now views itself differently. According to School Technology and Readiness self-assessment surveys completed in 2007 and 2009, Roselawn's Technology Team sees the school as having moved from "Mid-Tech" to "High-Tech" in just two years. Further evidence of technology's impact comes from a special needs student, a talented pianist who applied to the School for Creative and Performing Arts, not for music, but to pursue studies in technology arts. EETT has truly made a difference here.

WASHINGTON:
YAKIMA SCHOOL DISTRICT

The Yakima Public School District in Washington, a medium-sized district serving approximately 14,500 students, is responsible for educating a very diverse and strikingly low-income student body. More than 80% of its students are eligible for the federal Free and Reduced Price Meal program, more than one-quarter are deemed transitional bilingual, and nearly one-fifth are migrants. No demographic subgroup except for Caucasian students met proficiency goals in the 2009-10 state reading and math exams. As a result, three of Yakima's twenty-one schools qualify for federal School Improvement Grants and two more are on the verge of qualifying. The limited federal education technology funding that Yakima receives is critical to meeting its learners' needs and making its existing technology infrastructure more efficient and productive.

Yakima's special needs students, which account for 14% of its student population, have struggled with state proficiency exams more than any other group. Recognizing this issue, Yakima's Wilson Middle School, which serves approximately 100 special needs students, addressed this problem with a $12,500 Enhancing Education Through Technology (EETT) grant to help Kathy Schmidt, the school's special education teacher, better tailor instruction to suit her students' needs. This small grant allowed her to purchase and install a webcam, headset, laptops, classroom response system, software, training, a wireless keyboard and a mouse. "All the things that we know we need to do, we can't do without funding. EETT makes doing those things possible," stated Ms. Schmidt. "The technology provided by EETT funding made the learning process more accessible, more applicable and more transferrable to my students." This influx of technology is already translating into improved learning, with Ms. Schmidt reporting that the number of her students who passed the most recent statewide assessment increased from 8% to 59% in just one instructional year.

Yakima has also focused on efficiently using the technology it already owns by establishing the Classroom Connect program with $195,000 in EETT funding that it received in 2009 and 2010. The district sought the funding after its Technology Coordinator, Dan Matthews, recognized that nearly half of the district's classrooms did not integrate the technology, software and online content already available to them. With the EETT grants, he created Classroom Connect to focus on working with teachers to make the best use of their own classroom technology. In the 2009-10 school year alone, Classroom Connect reached

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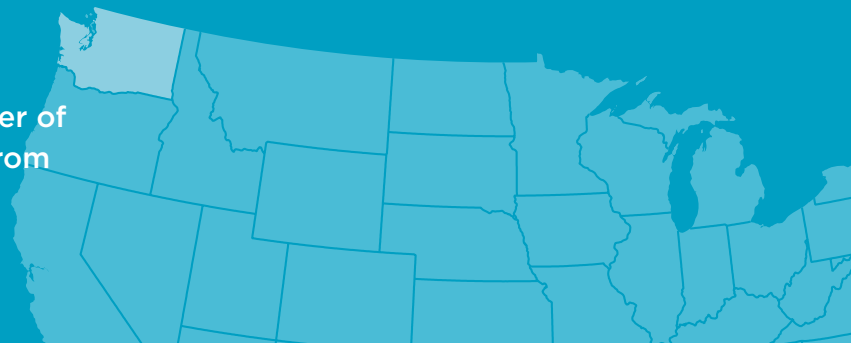

204 teachers in eleven of the district's lowest income schools, training them to connect their instructional computers to LCD projectors and the Internet and to make use of wireless keyboards to access computer resources from anywhere in their classrooms. To date, this basic nuts-and-bolts technology program has ensured that approximately one-third of all classrooms in Yakima have functional, Internet-connected technology. By taking advantage of largely existing but underused technology, Classroom Connect saved the district significant equipment and labor costs, making classrooms more efficient. Moreover, Classroom Connect's example helped spur Yakima's voters to pass a school technology levy that will, among other things, furnish 20 new computer labs.

Another significant byproduct of Classroom Connect is its success in improving individual teacher technology and pedagogical skills. The program fostered technology literacy by training teachers on how to serve as their own IT support and improved their classroom practice. A survey of participating teachers conducted by Mr. Matthews indicated that 49% of Classroom Connect teachers felt that their classroom technology integration skills improved and that 46% showed improvement in classroom teacher proficiency. Concludes Mr. Matthews after only two years of Classroom Connect's operation: "The data seems to clearly indicate that these classrooms are more successful integrating technology into their classroom lessons. The project data seems to support that better access to instructional resources resulted in those resources inclusion in the classroom."

"All the things that we know we need to do, we can't do without funding. EETT makes doing those things possible."

About NCTET

The National Coalition for Technology in Education and Training (NCTET) is a non-partisan organization that examines and supports the use of technology to improve education and training in America. NCTET's membership includes education associations, non-profit organizations, corporations and individual participants. NCTET organizes policy briefings, conducts institutes, produces white papers and other research documents, and maintains a listserv on timely issues in education technology. More information about NCTET can be found at: **www.nctet.org**.

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