



**Title II-D Enhancing Education Through Technology
Power Results Grant 2006-2008
Final Report**

August 26, 2008

**San Juan Board of Cooperative Educational Services
201 East 12th Street
Durango, CO 81301
970-247-3261
www.sjboces.org/wired**

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Title II-D Enhancing Education Through Technology Power Results Grant 2006-2008 Final Report

San Juan Board of Cooperative Educational Services (SJBoces) has finished its administration of the 2006-2008 Power Results grant. Through the *Whole-Classroom Interactive Resource Development (WIRED)* program, SJBoces provided interactive technology resources and professional development to teachers in the SJBoces service area to support and enhance student learning, and help districts meet their Educational Technology and Information Literacy goals.

This report is a high-level summary of both parts of the grant, referred to as Year One (FY 2006-07) and Year Two (2007-08). A more complete picture of the specific events in this grant can be obtained by referencing the *Year Two Mid-Year Report*, the *Year One End-of-Year Report*, and the *Original Grant Narrative*, all of which are included as part of this document. These reports provide more details as to statistics, development of artifacts, achievement of goals and milestones, project dissemination and reporting using Blackboard, etc.

Program Participation

In conjunction with administrators of the five school districts in the San Juan BOCES service area—Archuleta County, Bayfield, Durango, Ignacio, and Silverton—the decision was made to include the following grades 3-8 schools:

- Archuleta County
 - Pagosa Springs Elementary
 - Pagosa Springs Intermediate
 - Pagosa Springs Junior High
- Bayfield
 - Bayfield Elementary
 - Bayfield Middle
- Durango
 - DeNier Youth Services
 - Florida Mesa Elementary
 - Fort Lewis Elementary
 - Escalante Middle
 - Miller Middle
- Ignacio
 - Ignacio Elementary
 - Ignacio Intermediate
 - Ignacio Junior High
- Silverton Expeditionary

Technologies Provided

The scope of this grant was such that San Juan BOCES was able to provide a sufficient amount of new technology to make an enormous impact in the participating schools.



At the end of the grant period, the following technologies had been purchased and distributed:

- (71) 77" SMART Board interactive white boards
- (2) 48" SMART Board interactive white boards
- (35) SMART Board rolling floor stands
- (35) Presentation carts for housing projectors and laptops
- (46) Laptop computers
- (38) NEC LCD Projectors
- (2) Toshiba projectors with long-throw lenses
- (2) Bluetooth wireless devices for SMART Boards
- (7) Senteo interactive classroom response systems
- (7) Airliner wireless slates
- (8) Camcorders with Adobe video-editing software
- (3) Digital cameras
- (14) Digital laboratories:
 - (14) Digital microscopes (for all schools)
 - (3) 100x microscope lenses
 - (3) 200x microscope lenses
 - (13) Logger-Pro software (for all schools)
 - (48) TI-84 graphing calculators (for middle schools)
 - (75) TI-15 explorer calculators (for elementary schools)
 - (9) Temperature probes (for middle schools)
 - (9) Motion sensors (for middle schools)
 - (8) Middle school science books, for use with this equipment
 - (6) Elementary school science books, for use with this equipment
- (14) 2-year subscriptions to www.explorellearning.com interactive teacher website
- (5) District-wide licenses for Co:Writer and Write:Outloud software (through grade 8)

In Year One of the grant, all participating schools received the same “whiteboard kit”, consisting of one each of a 77” SMART Board, rolling floor stand, laptop computer, and LCD projector. We soon realized that some schools already had things like computers and projectors, and others wanted to wall-mount their SMART Boards instead of moving them around on the rolling floor stands. For that reason, in Year Two of the grant participants were able to self-direct their purchases from an approved list of technologies, which enabled them to better match their purchasing to fit the needs of their schools. This proved to be an effective and well-received change to the original plan.

Professional Development

A large part of this grant was directed towards training and professional development for the participating teachers. The trainings ranged from simple how-to sessions focused on using the SMART Board, to sessions devoted to integrating interactive web resources into the classroom. In Year One, sessions served the 65 original participants. In Year Two, 54 of the original participants returned for advanced training, and another 63 teachers came on board to participate in sessions devoted to new users. In all, we trained over 120 teachers throughout both years of the grant. Many teachers took advantage of the graduate credit offered through Adams State College for our June, 2007 and June, 2008 2-day sessions.

The training sessions occurred as follows:

- | | |
|-------------------|---|
| June 28-29, 2007: | 2-day SMART Board training for 49 participants |
| July 9-10, 2007: | 2-day SMART Board Training, makeup session for 16 participants |
| August 2, 2007: | 1-day optional open house with instructors from SMART Technologies |
| August 3, 2007: | 1-day lesson-planning and Assistive Technology workshop for 36 participants |



August 18, 2007:	1-day lesson-planning and AT workshop, makeup session for 21 participants
February 26, 2008:	1-day Basic SMART Board, Senteo, and Airliner training for 38 participants
February 26, 2008:	1-day Advanced SMART Board, Senteo, Airliner, video training for 35 participants
February 27, 2008:	1-day Basic SMART Board, Senteo, and Airliner training for 25 participants
February 27, 2008:	1-day Advanced SMART Board, Senteo, Airliner, video training for 19 participants
April 16, 2008:	1-day Digital Lab training for 36 participants
June 3-4, 2008:	2-day McRel workshop for 80 participants
June 24-27, 2008:	4-day TIE conference for 18 participants

Coaching

For all the training that we held during the grant, what really helped teachers get up and running with the new technologies was to have a coach in the classroom afterwards to help them with issues that might not have been covered in the training sessions. Having Becky Smith available to help in this regard was invaluable.

Since Becky's background is in education technology, she was a perfect resource for helping teachers integrate SMART Boards into their classrooms. She also helped with lesson-planning, online resources, and on-site demonstrations of other useful technologies. More importantly, she was always able to problem-solve with the teachers and give them a positive experience with the technology that helped motivate them to keep using it.

Coaching was a critical component of the grant's success, but we did ourselves a disservice by opening up the training to over 120 teachers; there is no way for one coach to be able to help that many people. Future such endeavors will include multiple coaches to be more effective.

Participant Requirements

In the initial training sessions, requirements were spelled out to help ensure that all participants would fulfill certain requirements in exchange for the equipment and training they received. The understanding was that the WIRED equipment, which was the property of San Juan BOCES during the grant period, would transfer ownership to the individual districts upon completion of the grant, and only for schools that were in compliance with the requirements. All schools satisfactorily adhered to the requirements.

Requirements included:

- *BlackBoard Website.* Teachers were required to post responses to specific discussion topics on the Durango school district's BlackBoard website. The idea was to have a collaborative environment where teachers could share ideas, ask questions, etc. with other participants. In addition to bimonthly "Reflections" assignments, teachers were required to post a collaborative SMART Board lesson plan that all students would participate in. The interactive website lists, SMART Notebook lessons plans, and collaborative projects that appeared on the BlackBoard site have been transferred to the San Juan BOCES website at www.sjboces.org/wired to be used as a resource for teachers both in and out of the WIRED grant.
- *Training Attendance.* There were requirements in place for all training sessions, where a certain numbers of teachers per school were required to attend. This helped in advance planning for meals and facilities, as well as ensuring that we would have adequate participation from all schools.
- *Collaborative Days.* While not a requirement per se, teachers were encouraged to make use of our offer of having the grant pay the substitute costs for them to get together with other teachers in their



buildings to do SMART Board lesson-planning as a group. Because it was not required, not many teachers took advantage of this opportunity.

- *School Board Presentations.* All participating schools were required to make a presentation to their school boards, in order to demonstrate the technology and keep the board members apprised of what the grant was providing.
- *Adams State Credits.* There were additional requirements for teachers who attend sessions in which we were offering Adams State College graduate credits. Generally, this additional requirement was a reaction paper with specific items to be addressed.

Success Stories

There are many success stories that came out of the administration of this grant. These stories help demonstrate the importance this grant had not only to the participating schools, but to our community as a whole.

- We included a professor from the Education Department at Fort Lewis College in all of our training sessions. She took what she learned at our sessions back to her pre-service teachers, to help them understand where this technology is heading. FLC does not have SMART Boards in place for these pre-service teachers, so this was a valuable use of the professor's time, and helps prepare our future teachers to be current with education technology trends.
- Three grant participants presented at the *Teaching the Millennial Generation* workshop at Fort Lewis College using SMART Boards and interactive websites to demonstrate the power of these new technologies.
- At the San Juan Basin Regional Science Fair in March—presented annually by San Juan BOCES—three SMART Boards were used for student activities and for presenting fair information to the 250 students and their parents and teachers.
- We successfully implemented SMART Boards in the two classrooms of DeNier Youth Services, an incarceration unit that is part of the Durango school district.
- In addition to presenting to the school board (as all schools were required to do), Silverton School took it one step further and demonstrated SMART Board technology during school events that were open to the general public.
- Bayfield High School specifically used SMART Boards to target those students with a 3-year history of failing math class. Their teacher reports increased progress and enthusiasm as a result of the SMART board implementation. The SMART Board the high school used was not provided by this grant, but was literally pulled out of a closet after the buzz about SMART Boards began to grow throughout the district.
- The computer teacher at Pagosa Springs High School, after seeing the power of this technology at the other Pagosa schools, used his own budget to equip his classroom with a SMART Board and begin using it on a regular basis.
- A total of four school principals, two assistant principals, and one school district superintendent participated in various different training sessions. Their participation showed their commitment to the grant and the importance they place on seeing their schools evolve with these new technologies.
- Many teachers, instead of only using the SMART Board as a “special activity”, used it as a regular part of their instruction, and in some cases switched all of their lesson plans over to SMART Board Notebook files.
- Two WIRED participants have already held onsite trainings for their remaining staff (at Miller Middle School and Bayfield Elementary School) to demonstrate the basics of SMART Boards and related technologies.



- Ignacio Intermediate, Ignacio Junior High, and Miller Middles schools—recognizing the value of SMART Board technology— have found ways to purchase a SMART Board for every core-area teacher in their buildings.
- At Ignacio Junior High, teachers pooled their individual budgets to help another teacher who was a few hundred dollars short of being able to purchase his own SMART Board, again demonstrating how important teachers believe this technology is.

Sustainability

There are many ways in which we feel the progress of this grant will sustain itself:

- 16 “lead” teachers attended the TIE conference in June. The information and resources gained there will be disseminated to other teachers when school resumes.
- Two teachers from Fort Lewis Mesa Elementary are leaving to go to Needham Elementary this year, and have agreed to take a SMART Board with them to introduce to the teachers at Needham, a school the grant did not serve.
- San Juan BOCES will continue to create awareness of SMART Boards by using them at its Board and Supervisor Advisory Committee meetings, and by continuing to demonstrate SMART Boards at the annual science fair. Further, SJBOCES plans to offer distance learning classes that will make extensive use of SMART Boards, thereby continuing to promote its use in our schools.
- The San Juan BOCES WIRED website (www.sjboces.org/wired) offers SMART Board resources not only for program participants, but also for new teachers who might have to learn about SMART Boards on their own, outside of the grant. It will remain on the SJBOCES site indefinitely.
- The lessons learned at Miller and Ignacio demonstrate to all other schools that they can, outside of the WIRED grant, find a way to fund additional SMART Board purchases for their teachers.
- The WIRED grant administrator will continue to offer advice to schools as needed to help facilitate the purchase of these technologies after the grant period ends.

What We Learned

For all of our successes with this grant, we also discovered a number of areas where we could have improved:

- We underestimated the amount of time it takes for a teacher to learn the SMART Board skills and integrate them into the daily routine of a classroom. More training, more hands-on time in the training, and more coaching time would have helped this. Also, having current classroom teachers leading the training sessions who use SMART Boards on a regular basis would be a great benefit, as they could help compress that timeframe with specific, practical examples of what they are doing in their classrooms.
- We found that working with the IT departments of five different districts, and in some cases, with IT personnel at individual schools, was very difficult. More planning up front with these people, including giving them a more complete picture of what the grant was doing, would have helped. As it was, we got all of our permissions from the district administration, and almost none of the information we gave them found its way to the appropriate IT personnel.
- In Year One, we provided teachers with portable SMART Board setups, so they could share them among several teachers. This absolutely did not work well. Teachers need to have permanently-mounted SMART Boards in their own classrooms. A ceiling-mounted projector and Bluetooth wireless connectivity also helps, as it minimizes the number of cables snaking around the room. Teachers found that once they had the SMART Boards in their classrooms, they did not want to part with them, especially after developing plans specific to its use. We saw greater success during Year Two, when schools could self-direct their purchases and get additional SMART Boards that did not have to be mobile.



- We learned of at least two other interactive whiteboard solutions that are less expensive than SMART Boards: Mimio units that turn existing whiteboards in interactive whiteboards, and a “homemade” whiteboard solution that can be made for less than \$100, using parts from an electronics store and a Nintendo Wii remote control unit. These might provide a viable solution for schools with limited budgets for these technologies.
- Collaborative days for teachers to get together and plan lessons in groups did not go over well with the teachers, even though the grant paid for the cost of substitutes. This should have been a requirement, which would have helped promote the collaborative nature of what we wanted to accomplish with this grant.
- We learned that one classroom coach was not enough, especially towards the end of the grant period, when there were over 120 active participants in the program. Future such programs should either limit the amount of teacher participation (less desirable), or increase the number of coaches. Our goal was to train as many teachers as possible, but because we only had one coach, many teachers did not get the benefit of Becky’s resources in their classrooms.

Summary

The WIRED program was an incredible opportunity for our region. It’s doubtful that any of the schools in the San Juan BOCES service area would have implemented these technologies in their schools during this time period, and if they would have, they likely wouldn’t have done it to the degree we did during this grant. The impact to the participating schools, as well as the professional development for the teachers, cannot be understated.

The administration of this grant has proven that a BOCES can branch out from its traditions of special education and services for students with disabilities and serve a broader range of students with what is becoming an important part of schools throughout the country: training, equipment, and resources for 21st-century learning.

WIRED Program/Power Results Grant Year Two Mid-Year Report

The San Juan BOCES Whole-Classroom Interactive Resource Development (WIRED) program is currently in its second phase. This document is an update of the second-phase activities, and will not include purchase, training, and other activities completed in the first phase. San Juan BOCES is implementing this grant primarily in grades 3 through 8, in fourteen buildings across five school districts.

Purchases

Per the grant narrative, the second phase has provided additional SMART Boards to participating buildings, as well as new technologies such as Senteo interactive response systems, Airliner wireless slates, digital camcorders, video-editing software, and 2-year building subscriptions to the ExploreLearning.com Gizmos site. We have also purchased “digital laboratories” for each building, consisting of digital microscopes, graphing calculators (for middle schools), basic calculators (for elementary schools), motion sensors, temperature probes, and related accessories and software.

The Equipment budget for this phase is approximately \$154,000, of which approximately \$148,000 has been expended. In mid-March, we will reconcile our purchases and determine how the rest of the equipment budget will be allocated.

To date, we have purchased the following, in keeping with our stated equipment goals and milestones:

- (33) 77” SMART Board interactive white boards
- (2) 48” SMART Board interactive white boards
- (7) SMART Board rolling floor stands
- (2) Bluetooth wireless devices for SMART Boards
- (18) Laptop computers
- (10) NEC LCD Projectors
- (2) Toshiba projectors with long-throw lenses
- (7) Senteo interactive classroom response systems
- (7) Airliner wireless slates
- (7) Presentation carts for housing projectors and laptops
- (8) Camcorders with Adobe video-editing software
- (3) Digital camera
- (14) Digital laboratories:
 - (14) Digital microscopes (for all schools)
 - (3) 100x microscope lenses
 - (3) 200x microscope lenses
 - (13) Logger-Pro software (for all schools)
 - (48) TI-84 graphing calculators (for middle schools)
 - (75) TI-15 explorer calculators (for elementary schools)
 - (9) Temperature probes (for middle schools)
 - (9) Motion sensors (for middle schools)
 - (8) Middle school science books, for use with this equipment
 - (6) Elementary school science books, for use with this equipment

Training

This year, we have continued offering training sessions to teachers; those who participated in the initial training last year, as well as new participants. These sessions meet our dissemination goals in two ways. First, for teachers who went through training last year, they provide additional, advanced training that enhances the teacher’s understanding of advanced concepts by including a variety of technologies into their classroom practices. These training sessions also give them additional resources to help new participants in their building. Second, the sessions for beginning SMART Board users provide a substantial enough foundation in the use of this technology that these teachers can immediately implement them in the classroom.

Our training sessions are taught by instructors from our primary suppliers, with supplemental training by San Juan BOCES staff and contracted consultants. Beyond teaching instructional concepts, they are also used to disseminate program requirements to all participants. These requirements ensure active participation in the program, and help us evaluate the program's success. (See *Evaluation* section below).

The training sessions for the second phase of the WIRED program include:

- *Basic SMART Board Training.* (2) 1-day sessions were held on February 26 and 27, and included instruction in use of SMART Boards, Senteos, Airliners, Gizmos math and science interactive website, and lesson-planning for SMART Boards. These sessions served 65 new participants.
- *Advanced SMART Board Training.* (2) 1-day sessions were held on February 26 and 27, and included instruction in the advanced use of SMART Boards, Senteos, Airliners, Gizmos math and science interactive website, and digital video editing using Adobe Premiere Elements software. These sessions served 45 existing program participants.
- *Digital Lab Training.* This 1-day session will be held on April 16, and will serve approximately 40 existing and new participants to the program.

In addition to specific equipment training, the following workshops are planned to enhance teachers' learning and exposure to the use of technology in the classroom. These sessions also provide additional opportunities to discuss the WIRED program in a collaborative environment.

- *McRel 2-Day Workshop: Using Technology with Classroom Instruction that Works.* This workshop, taught by the authors of the book *Using Technology with Classroom Instruction that Work*, will be held in June. We will include a copy of the book for all participants, and have space available for 80 teachers, administrators, and curriculum developers in the participating buildings. Successful completion of the workshop and assignments will earn participants Adams State College credit.
- *Technology in Education Conference.* The grant will provide an opportunity for a "team leader" from each building to attend the TIE Conference in June. This "team Leader" will have additional responsibilities related to the dissemination of the TIE information to all WIRED participants in their buildings.

Evaluation

We continue to evaluate the success of the program in several ways.

The use of the Blackboard Academic Suite (<http://blackboard.durango.k12.co.us/>) allows us to solicit feedback from participants, evaluate response to specific assignments, track user participations, disseminate program information, and provides a collaborative environment where teachers can post lessons plans and respond to comments and concerns from other participants. All content on Blackboard will be moved to the San Juan BOCES website (www.sjboces.org) after completion of the WIRED program, in order to provide a teacher resource as it relates to the technologies in this grant.

Our other evaluation process involves Becky Smith, the educational consultant who visits the schools on a regular basis, and provides coaching, lesson-planning ideas, and other support to our program participants. By being in the classrooms, Becky can immediately see if the value of this technology is being fully realized.

We can see how well the technologies are being utilized in other ways, as well. In the Ignacio school district, for instance, the teachers and administrators in the Intermediate and Junior High schools have taken it upon themselves to find funding to ensure that all classrooms—not just those participating in the WIRED program—have SMART Boards next year. This is great evidence of how critical this piece of technology has become at the building level. Such enthusiasm to the technology will help this program sustain itself long after the grant period is over.

Another success story is that of the participation of Fort Lewis College's Mary-Lynn Herr. Ms. Herr has attended our Basic and Advanced training sessions, and is working on SMART Board use with her pre-service teachers. For those teachers who start their teaching careers in one of the five San Juan BOCES-served school districts, they will have the advantage of immediately putting the SMART Boards to use as soon as they enter the classroom.

Summary

The WIRED program continues to go well, and we feel that we are meeting or exceeding the goals and milestones of the program. We are happy to provide additional information on request.

WIRED Program/Power Results Grant Year One End-of-Year Report

Whole-Classroom Interactive Resource Development (WIRED) is a program to increase student achievement by providing whole-classroom interactive technology resources with effective, ongoing professional development and collaborative opportunities for teachers to support learning and help our districts meet their Educational Technology and Information Literacy goals. Following is a summary of WIRED Program activities for Year One including a critical evaluation of all program components: what worked well, what did not, and what needs attention in Year Two. Overall, we believe the program has been extremely successful and has the potential to make a tremendous impact on student achievement in the region.

PROGRAM PARTICIPATION

14 Elementary, Intermediate, Middle and Junior high Schools each received two “Smartboard” interactive whiteboard kits that included a new laptop computer, LCD projector and mobile carts for both the projector and interactive whiteboard. Participating schools include:

- Bayfield Elementary School
- Bayfield Middle School
- Ignacio Elementary School
- Ignacio Intermediate School
- Ignacio Junior High School
- Pagosa Springs Elementary School
- Pagosa Springs Intermediate School
- Pagosa Springs Junior High School
- Silverton School of Expeditionary Learning
- Fort Lewis Mesa Elementary, Durango
- Florida Mesa Elementary, Durango
- Escalante Middle School, Durango
- Miller Middle School, Durango
- Robert E. DeNier Youth Services Center, Durango

At the conclusion of Year One, all 28 WIRED interactive whiteboards were successfully installed and operational in all 14 participating schools. As a result of conversation about this program, several school districts uncovered interactive whiteboards in their buildings that were not being used. Four additional interactive whiteboards have been literally pulled out of closets and are being put into operation in our districts: one at Bayfield High, one in Pagosa and two in Ignacio.

Schools each named a team of teachers to participate in program activities and training workshops. It was suggested that teams include teachers of all core subjects plus special education and if possible a technology or media specialist to provide additional support. Some schools followed this pattern and others did not. One sent all math teachers, one focused on science teachers and media specialists. One school team consists of a special education teacher, a gifted/ talented teacher, and a computer teacher. Allowing each school to select its own team was important to the program as it ensured voluntary involvement by willing and motivated participants. Special attention to the unique makeup of each school team will be needed in Year Two as we look to evaluate the effectiveness of the program and correlate results to program participation.

To provide a certain level of depth in each building, as well as adequate opportunity to collaborate and work together, schools were encouraged to identify at least five members for their team. School teams selected range from two to eight participants from each building. Each team arrangement has both potentially positive and negative consequences. Ongoing support in Year Two will need to be tailored to each school's arrangement. Small teams may need additional help brainstorming ideas or working through technical issues without other team members to call on. Large teams may need help identifying more ways to collaborate on projects and to share the equipment so that all participants remain active and engaged and do not lose learned skills through lack of use.

A total of sixty-nine educators participated in WIRED Summer Workshops. In addition to classroom teachers, participants included one building principal, an assistant principal, a district IT director, a Fort Lewis College Professor of Education and several BOCES staff. It was very helpful to be able to include these different perspectives in our discussions, and active involvement by such individuals should be encouraged. A list of educators participating in the WIRED 2007 Summer Workshops is attached.

39 attendees applied for graduate credit from Adams State College, with 64 credits successfully earned and awarded to 35 participants by the conclusion of Year One.

SUMMER TRAINING WORKSHOPS

A two-day Professional Development Workshop was scheduled for the end of June. Following the workshop, participants were expected to spend at least one day over the summer working with the equipment, software and program materials, getting familiar with the technology and preparing a lesson that they would then share at a one-day Summit held early in August. An informal, unstructured "Open House" day was provided before the Summit where teachers could come to use the equipment and work together with WIRED program instructors and educational consultants on hand to help out.

Several teachers had difficulty attending on the scheduled days and asked if there was any opportunity to "make-up" the training. In response to this, we scheduled a second session for each of the two structured activities. 49 Participants attended the originally scheduled two-day event in June and 16 attended the "make-up" training in July. 36 participants attended the original one-day Summit on August 3 and 21 attended the "make-up" session on Saturday, August 18. The weekend date was requested by several teachers as the only way they could attend.

In addition to meeting the needs of our program participants, holding two sessions for each training provided a nice opportunity to revise the instructional material in response to feedback received. Significant effort was made to rework the material based on what we had learned, specifically to provide a smoother time flow with no more than 20 minutes sit-down time, followed by a hands-on activity specifically designed to reinforce the skills just learned. This format worked well and future WIRED activities will be designed keeping this in mind.

The instructional team for the two-day WIRED Workshop in June included two trainers from Audio Visual Innovations (AVI), the vendor selected to provide program equipment. The AVI trainers provided the ins and outs of using the Smartboard interactive whiteboards. Local instructors created and led specific activities to demonstrate the use of the interactive whiteboard in a classroom. The local instructional team included:

- Becky Smith, Technology in Education Specialist
- Derinda Babcock, Lead ELL Teacher and long-standing interactive whiteboard user, Durango High School
- JoAnne Hibbard, Director of Professional Development, Durango 9R School District
- Steve Otter, Professional Development and Career and Technical Education Coordinator, San Juan BOCES

We were very pleased with the responsiveness of the AVI trainers to match their training to our needs. Mixing their instruction with our activities was not something they had done before and took considerable time, effort, coordination and open-mindedness. While the blending was extremely successful overall, there were some difficulties along the way keeping the pace and timing and order matched. One of the trainers, Kristin Kraemer, is a former classroom teacher who formed a very solid relationship with participants and staff. It is our hope to continue to work with Kristin as we develop the train-the-trainer protocol during Year Two.

The two-day "make-up" session in July was delivered successfully by the local instructional team without the vendor instructors present. 100% of participants at this July session responded "Excellent" when asked to rate "How well the instructors reached the stated goals of the workshop." This is an important accomplishment since the ability to keep the program moving forward past the initial grant period rests on our ability to learn and train ourselves.

Other factors contributing to the extremely positive response from participants at the July make-up session possibly include a smaller group size, fewer teachers per whiteboard (4 instead of 5), and an air-conditioned

facility. The June and August workshops were held in school buildings that were horribly hot and participants are commended for making the most of an extremely uncomfortable situation. Future workshops will be designed with these considerations in mind, specifically weighing the benefits of a larger group for sharing and collaborating against the more accommodating nature of a small group.

Special attention was given during both days of both sessions to instruction and practice physically manipulating the program equipment. It was considered crucial to ensure all participants were extremely comfortable with the hardware so they would not be stuck trying to troubleshoot an inoperational board in their classrooms, losing valuable instruction time.

In all of our workshops, there were some issues with the way we grouped participants for instruction and hands-on activities. The original groupings were made according to grade level, but several groups struggled because of the extremely wide range of technological abilities within their groups. When participants were allowed to self select groups, however, they often gravitated along school and district lines, somewhat limiting their exposure to a wider pool of people and ideas. Several teachers suggested groups be arranged by subject area taught. This seems like a very good idea to explore, though extra effort would be needed to not lose the potential for cross-curricular collaboration which is considered an important piece of this program.

At the Summit held August 3, we were able to provide an opportunity for participants to select one of several "mini-workshops" based on interest and technology skill level. This was done at the suggestion of several participants following the first training workshop and proved to be a successful approach to accommodate the varied needs of many of our participants.

The Open House held August 2 was another successful WIRED program component. In addition to several members of the instructional team, we were pleased to have had two educational consultants from Smart Technologies, the manufacturer of the interactive whiteboards. The casual, informal structure allowed teachers the opportunity to address unique needs and questions that would not have been appropriate in the larger group setting. One teacher brought her Elmo document camera to see if it could be made to communicate with the whiteboard. Several teachers from Bayfield were able to receive much needed Macintosh specific help, as the whiteboard operation is surprisingly different on Mac systems.

A copy of the 2007 WIRED Workshops brochure is attached. Stated objectives of the Summer workshops were to:

- Provide a collaborative forum for educators from the region to meet and share ideas.
- Excite and motivate participants about the use of WIRED technology in their classrooms.
- Provide basic instruction in the use of WIRED technology so that participants are well able and comfortable using the technology in their classrooms at the start of school.
- Demonstrate a wide variety of applications and activities so participants get a feel for the realm of possibilities.
- Provide access and guidance using written and online resources so that participants may continue to advance their learning and understanding as they work with the technology during the school year.

Feedback from participants was extremely positive. A copy of the evaluation results and participant comments from the two day WIRED Workshops held in June and July is attached, showing:

- 96% of participants rated the overall quality of professional development as above average or excellent.
- 96% of participants rated how well the instructors reached the state goals as above average or excellent.

Participants were asked to evaluate their own growth as a result of the workshop and indicated significant growth of both interest and preparedness to use the workshop information and skills in their classrooms. Before the workshop, two thirds of participants responded only "1" or "2" (on a scale of one to five) when asked how prepared they were; after the workshop, 100% of participants indicated "3" or above, with over one third each responding "4" and "5". Before the workshop, most participants (57%) responded "3" or less when asked to describe their level of interest; after the workshop, 98% noted interest level at least "4", 84% responding the maximum "5".

As part of the work required for graduate credit, participants were asked to write a reflection paper following the two day workshop about their thoughts on using the WIRED program technology in their classrooms. We

were overwhelmed with the extraordinary enthusiasm and strong level of commitment shown by our participating educators. Teachers offered ideas about how to use the technology in their class and their buildings, including the storage and display of attendance records and homework logs, daily data collection for student projects, presenting student led IEP meetings, assisting Professional Learning Community meetings, parent conferences, all sorts of student presentations and an incredibly rich variety of teacher led interactive lessons and other ideas. Participants also offered concerns and brought up logistical issues that need attention as we move forward. Finding the time needed to rework lessons for use on the interactive whiteboard remains a large issue.

Attached please find the reflection paper provided by Tracy Schenk, a teacher from Pagosa Springs Junior High. While we cannot claim to have satisfied everybody as well as we did Tracy, the tone of her paper does reflect the truly positive and inspiring mood of the program and its participants.

A copy of the evaluation results and participant comments from the one-day WIRED Summits in August is attached. 98% of participants agreed that participating in the Summit was valuable to their teaching. When asked to rank on a scale of one to ten how prepared they were to begin incorporating Smart Technology into their lesson plans, 74% responded with a "7" or higher" and the average response was 7.4.

"10" in this evaluation was described as "I can do anything!" Only 8% of participants indicated they felt this strongly. While we are not unhappy with the response overall, ideally all participants would be at a "10" and feel like they could do anything. Comments from workshop evaluations, as well as casual conversations with our participants, indicated a need and desire for ongoing, regular, in-person program support. Our local instructor Becky Smith was retained to serve as the WIRED Teachers' Coach, traveling from building to building and working with teachers on an individual or small group basis. The need to support building administrators so they in turn could best support their staff was also identified. Betsey Krill from San Juan BOCES was brought onboard as the WIRED Administrators' Coach. It is our plan to continue both of these services throughout Year Two.

When looking ahead towards planning Year Two activities, participants were surveyed about their scheduling preference for Workshops and training activities. Participants were asked to indicate their choice(s) for how to schedule training workshops once school begins, selecting all options that would be workable for them:

- 70% selected *After School* (with the program paying a stipend to teachers).
- 42% selected *During school days* (with the program reimbursing for substitutes).
- 23% selected *Weekends* (with the program paying a stipend to teachers).
- 7% selected *Before School* (with the program paying a stipend to teachers).
- 5% selected *Holidays* (with the program paying a stipend to teachers).

The original plan had been to hold workshops during school. The lack of available substitutes and the additional time it takes to prepare for a substitute are cited by our teachers as problems with this model. Less than half of participants indicated they could participate in training workshops during school days, even with reimbursement available for substitute costs. Far more indicated a preference for after-school meetings and several teachers selected weekends. Some participants indicated only one choice for when they would be available, **only** during school days, after school, on weekends or before school. The clear lack of consensus makes scheduling difficult. We will attempt to provide access to the widest number of participants in Year Two by continuing to schedule multiple sessions for each training workshop, both during and outside of school time.

In addition to regional training workshops and individual coaching support, it is our plan to provide all training materials in a self-contained, on-line format where participants can continue to advance their skills and participate in program activities even if they may not be able to attend all scheduled events. The materials will be available for participants to download and complete on their own time, for lead teachers to use when training new participants, and for all to review and refresh whenever the need arises.

EQUIPMENT AND LOGISTICAL ISSUES

In Year One, we provided all schools with fully mobile whiteboard kits that included a 77" interactive white board from Smart Technologies, laptop computer, LCD projector and wheeled carts. The computers

purchased were specified by the district technology department in order to provide uniformity and compatibility with existing district machines. Through the course of the program, additional needs were identified by districts as important towards successful implementation and we did what we could to address those needs. The limited space in DeNier Youth Services necessitated the purchase of a smaller sized whiteboard. Several schools were provided wireless routers to support large teams constantly moving and sharing equipment. Additional software was purchased for a district to support the needs of specific English language learners. One district was provided an additional laptop computer for a WIRED teacher who travels between schools and works with multiple boards including an old, previously closeted unit.

Some people suggested early on that they could do without the new laptop computers in favor of more whiteboards, pointing out that almost every teacher has access to a computer. Our experience has been that the new computer was indeed a critically important part of the system, allowing for easy sharing of the whiteboard and providing a measure of distance between students and the teachers' own machines. Much of the benefit of the interactive whiteboard rests in student participation and there can be a certain amount of risk and discomfort with allowing students to use teacher computers. Also, some teacher computers have proved to be too slow to provide the quick access of large files and software required to take full advantage of the interactive whiteboard. Having a complete, working system immediately available was critically important to getting all of the whiteboards up and operational in our schools.

But looking forward to Year Two, teachers and schools have had time to work closely with the WIRED program equipment and will be able to make well-reasoned decisions about which equipment is most needed and would provide the most benefit to the WIRED participants in their building. Some schools have equipment in place, such as ceiling mount projectors that can be successfully integrated and may eliminate the need for one or more pieces of the standard WIRED program equipment. It is our plan to offer schools the opportunity to help select their own equipment package within guidelines established by the program. Schools may be able to trade out equipment such a projectors or mobile carts that they are not using to a different school that does need them, with funds saved then available for other equipment.

There is a formidable amount of space and time required to receive, log, assemble, move and configure the large volume of equipment. Even with the minimal building activity seen over the summer, it was a challenge to handle the physical enormity of the project. We very much appreciate the help given and accommodations made by the Durango 9R School District to receive and store the materials and to host the training workshops. It could easily have been stressful and overwhelming had we not enjoyed the full cooperation of building and district staff.

As we went to configure the interactive whiteboards in the schools, several district Technology Directors and other district staff raised valid concerns about the security of the hardware in their buildings, especially over the summer. In response, locking security cabinets were purchased that fit inside the projector cart and can contain the laptop computer, projector and other peripherals. A locking cabinet will be considered an integral part of the hardware configuration for future purchases. While we did not experience any catastrophic loss due to theft in Year One, the need to be aware of security was driven home when the special allen wrenches used with and secured to the interactive whiteboards were unexplainedly removed from the training units sometime over the summer and never accounted for.

Security was also an issue as we went to set up an on-line forum to present program information and allow participants a vehicle to share ideas and go for support. We had planned to establish a site within www.swcomath.org, which was being established as a collaborative bulletin board for regional mathematics educators. But initial experience with running an open bulletin board on the swcomath site proved the idea inappropriate. The open site attracted internet trolls looking to sell anything and everything, especially sex and drugs. The site received several inappropriate solicitations daily from "new users" who required constant blocking and pruning but still left an unsafe and unsavory feel to the site.

JoAnne Hibbard with Durango 9R School District worked with us to instead create a BlackBoard Online Learning course that has proved to be a good solution. Teachers and staff have been able to post and retrieve lessons, ask and answer questions, download program forms, complete assignments, and join in discussions in a safe, structured, password-protected environment. The course is rich with hundreds of ideas and thoughts from our participants about 21st century learning, using the technology for student lessons, using it for student and staff collaboration, differentiation, classroom management, working with English

language learners, supporting students with disabilities and all sorts of issues that our educators face in their classrooms. Considerable effort will be required in Year Two to compile, format and organize the information and artifacts from BlackBoard in order to present them online for display and download by others.

COLLABORATIVE DAYS

Collaborative Days is a program component aimed at providing teachers needed time to collaborate and work together. Participants could either be reimbursed for the cost of substitute teachers so they could be released from class or receive a stipend for work done outside of school time, including the summer. Participants were required to prepare a description of the activity to be conducted including a brief statement of the purpose or goal of the activity and to follow up after with a short reflection about what did happen and the progress made towards achieving the purpose or goal.

Some of the ways participants used Collaborative Days were to:

- set-up program equipment
- develop and prepare lesson plans
- practice whiteboard skills
- discuss plans for how to work together and share equipment over the course of the year
- brainstorm for collaborative project activities

One group of teachers from Pagosa Springs Junior High School created a lesson that introduces new users to the interactive whiteboard and provides the basics about how to write, erase, and move things around. This high quality lesson is equally appropriate to use with students, staff, parents and all others who may interact with the board on a casual basis. This lesson was shared on the WIRED on-line course site and we have been told that it has been used by teachers in each of the five BOCES districts. This type of collaborative effort and achievement is precisely what we were hoping and expecting to see and we look forward to many more.

While time to work together is frequently cited as a huge need by teachers, fewer than half of participating teachers were able to take advantage of this opportunity. Many teachers indicated that they wanted and intended to do this but time simply never became available. The scheduling of program activities over the summer may possibly have worsened this problem, but prior experience tells us that finding time during the school year is equally or more difficult. "Finding time" is critical to the successful implementation of this or any new program. Ideally, adequate time to participate in a variety of collaborative activities could be included within teachers' schedules in general, considered part and parcel of the job. This is an important issue but other than offering and encouraging the use of Collaborative Days, it is far beyond the scope of the WIRED program.

ASSISTIVE TECHNOLOGY PARTNERSHIP

When we first started talking to teachers and staff about the WIRED program, we were met with reactions across the board from instant enthusiasm to serious trepidation about how it could work. Several comments were made that our "Whole-Classroom" approach would not really be able to serve our most challenging students, including students with disabilities. One comment was made by a district IT director asking why one teacher would go to the training, remarking "you only teach special ed." Concern was also expressed about how things would work with the most advanced students, worried they may get bored quickly with the new technology. These comments were often made in passing, without benefit of thinking things through; but they do reflect a hopeless feeling that sometimes hangs over certain students.

As we talked through these issues with staff and participants, it was decided that extra effort was needed to support all students on the edges of the "Whole-Classroom." Students with disabilities will be encouraged to lead their own IEP meetings using a projector or whiteboard for presentations and note taking. Gifted/talented teachers were encouraged to participate in the program. Software was purchased that will assist English Language Learners. In addition to appropriate instructional tools, effective instructional practice is needed that differentiates and supports all learners.

The Assistive Technology team at San Juan BOCES was invited to participate with program development, and the resulting partnership solidified many of the concepts that are central to all learners, not only

exceptional students. 94% of those attending the WIRED Summits in August agreed that participating in the Assistive Technology demonstration was valuable to their teaching situation.

When planning for the WIRED workshops, Robyn Kellogg, Assistive Technology Coordinator, was asked to name a few of the most important pieces of assistive technology to demonstrate for WIRED participants, most of whom are general education teachers. We were going to bring as much equipment as would could to the August Open House and Summits, part of showing the “realm of possibilities” using the WIRED technology. Not expected by WIRED staff, Robyn’s top suggestions were very simple devices and strategies that are helpful to all learners and did not involve any complicated or expensive equipment:

- A Microphone. Modern computers, PC and Mac, can very easily record sound input from a microphone. Teachers and students can record notes, self-edit their own writing and incorporate audio recordings into their presentations.
- Adaptive Computer Settings. Modern computers, PC and Mac, have many built-in features that allow users to easily increase text, picture, and pointer size of everything on display, magnify images on screen, use audio and/or visual clues as a signal for program functions, and manage other adaptations.

Robyn also suggested a specific digital camera she had been investigating, a very kid-friendly model from Fisher Price that is held with two hands and uses two eyes that seemed especially appropriate for students with disabilities. A camera was provided to each WIRED participant for use in their classrooms. With such a camera, students themselves can easily record events and incorporate pictures into their daily work, as well as projects and portfolios. Even though it is designed as a child’s camera, it works well enough for teachers to use to prepare lessons or capture and disseminate student work.

The Assistive Technology team recommended Co-Writer and Write-Out Loud as software applications that would be very appropriate and useful within any general education setting, WIRED classrooms in particular. For less than the cost of 28 individual copies to cover WIRED program computers, we successfully negotiated a regional licensing arrangement with the software vendor that allows unlimited use across the BOCES region K-8, both in school and for students at home. This is a break-through event that provides tremendous opportunity for students all across this region.

Our experience with CO-Writer and Write-Out Loud tells us they can have a powerful impact on student writing and learning, but the cost of this software made it prohibitive and BOCES had in the past been able to purchase only a few dozen copies to share across the entire region. Student needs had to be prioritized and copies were frequently uninstalled from one room to load in another. Because the funds used to purchase this software in the past were funds dedicated to support students with disabilities, the software could not be used with students who had not been identified for special education services but were struggling and could certainly benefit. Using WIRED program funds in this way, intended to support the whole classroom, we no longer have to wait and watch a child fail before we can provide the tools we believe will help.

Additional equipment that supports the inclusion of all students in an interactive classroom was purchased, including wireless interactive slates, adaptive switches and classroom amplification systems. These will be used and evaluated by educators across the region through the BOCES assistive technology lending library, now available for all teachers to use, serving general ed and exceptional students alike. Breaking down the wall between general and special education technology services is a very exciting accomplishment of this program and will surely benefit students in the region for many years to come.

ACKNOWLEDGEMENTS

The Whole-Classroom Interactive Resource Development program was funded by a Colorado Department of Education Power Results Grant and the US Department of Education Title II-D: Enhancing Education Through Technology. San Juan Board of Cooperative Educational Services very gratefully acknowledges this support and is excited to continue this fantastic opportunity.

**WIRED Program/Power Results Grant
Original Grant Narrative**

Identification of Focus Area

San Juan Board of Cooperative Educational Services (San Juan BOCES) is applying to the Power Results Grant Program under the second identified focus area, "Integration of technology resources and systems with teacher training and curriculum development to establish research based instructional methods that can be widely implemented throughout the state."

Abstract

Whole-Classroom Interactive Resource Development (WIRED) is a program to increase student achievement by providing whole-classroom interactive technology resources with effective, ongoing professional development for teachers that will support learning and help our districts meet their Educational Technology and Information Literacy (ET-IL) goals. In Year One, schools will be provided interactive whiteboards that will allow teachers to engage the entire classroom at one time with technology assisted activities. Graphing calculators, microscopes, and other digital equipment that can be used in conjunction with the whiteboards will be introduced in Year Two. All of these materials will support and encourage day to day collaborative interactions for students and teachers and be used to carry out collaborative student projects. This program will target teachers in grades three through eight from 13 schools in the San Juan BOCES region:

- Archuleta County School District: Pagosa Springs Elementary, Pagosa Springs Intermediate, Pagosa Springs Junior High Schools.
- Bayfield School District: Bayfield Elementary and Bayfield Middle Schools.
- Durango 9R School District: two elementary and one middle school.
- Ignacio School District – Ignacio Elementary, Intermediate and Junior High Schools
- Silverton Expeditionary School

Identification of Needs

San Juan BOCES is applying for Power Results grant funding to serve elementary and middle schools in each of our five member school districts. Three of our districts are considered high poverty with more students eligible for the National School Lunch Program than the state average: Archuleta County - 41.6%, Ignacio - 49.6%, and Silverton - 77.3%.

Ignacio Junior High School received a low ranking on the 2005-2006 School Accountability Report, failing to meet some targets for AYP in both math and reading. Ignacio School District has been identified for corrective action by the state. Durango did not meet AYP math targets for their high school students and has been identified for program improvement. Our districts are struggling with decreasing student proficiency in math as students advance in grade.

Summary of 2006 CSAP Math results for students in San Juan BOCES region				
Grade Level	% Advanced	% Proficient	% Partially Proficient	% Unsatisfactory
3	34%	43%	20%	2%
4	27%	48%	21%	4%
5	23%	46%	26%	4%
6	17%	41%	32%	9%
7	23%	31%	29%	16%
8	18%	28%	34%	20%
9	16%	27%	33%	23%
10	6%	26%	38%	28%

Comparative CSAP data for science proficiency shows that the percentage of students in the San Juan BOCES region ranked *advanced* in science decreases from 15% of students in third grade to just 5% of students in tenth grade and the percentage of students ranked *unsatisfactory* in science increases from 14% of third grade students to 21% of tenth grade students according to 2006 CSAP results.

The need for whole-classroom interactive resources was identified by participants in the Southwest Colorado Mathematics Initiative (SCMI) as a way to help teachers effectively incorporate technology into their classroom and improve student learning. SCMI is a professional development program nearing completion that served middle school math and other teachers in the region. SCMI was funded by a Title II, Part B, Math and Science Partnership Grant with the Colorado Department of Education and United States Department of Education and by ACT 2001, Improving Teacher Quality, a Title II Program Grant administered by the Colorado Commission on Higher Education.

Feedback from SCMI participants indicated an increased level of confidence and enthusiasm for using technology strategies and materials in their classrooms but a limited ability to implement them due to logistical constraints. Teachers explained it was difficult to hold the attention of an entire class with only one calculator. And while all of our districts do have computer access for students in either laboratory or workgroup settings, this forces a separation between the use of these tools and normal classroom activities. The need became apparent for a way to fully integrate technology into the whole classroom and curricula.

San Juan BOCES solicited input from our district administrators and teachers about their specific needs and thoughts about incorporating technology into their classrooms and curricula. One starting idea was to provide digital projectors and classroom sets of graphing calculators plus related professional development activities to schools. Initial feedback and brainstorming indicated this was a step in the right direction but not nearly enough to truly integrate technology into classrooms. The project was redrawn to include interactive whiteboards such as Smart Boards plus connected inquiry tools such as microscopes, cameras, range finders, and measurement probes.

Response has been very enthusiastic for this expanded program, designed to provide the training, equipment and ongoing support needed to establish whole-classroom interactive settings. Teachers suggested many different ways these tools would help them improve their instruction and student achievement by using this technology to better engage and motivate students, simultaneously reach students through all different learning styles, foster collaboration among students, enable and encourage students to share the results of their work, better meet the needs of special education students, provide an easy way to capture examples of student work for sharing and collaborating with other educators and parents, and to ensure and document that their students are meeting all of their district's ET-IL goals.

Our isolated location creates an especially high need for technology and information skills and literacy among students, teachers and all workers in this community. It can be prohibitively expensive and time consuming to travel to the Front Range or beyond to attend conferences or other professional development activities. The same is true for students wanting to visit a large museum, zoo or other activity. The technologies included in this program will bring Southwest Colorado much closer to the rest of the world by providing opportunity for interactive distance learning, virtual labs and field trips plus other multimedia educational experiences serving teachers and students.

The *WIRED* program itself will provide a local forum for area educators to collaborate with each other, another need expressed by our teachers. Building and district level teams will be created and given the opportunity to work together on a regular basis to support the program and each other. Regional activities bring together educators from all five of our member districts. This is especially needed by teachers from our smaller districts who may be the only district teacher covering their subject and grade.

Program Description

The *WIRED* program will serve elementary and middle school teachers from all five school districts of the San Juan BOCES region, targeting grades three through eight. The program will provide two whole-classroom interactive resource kits to each participating school. In Year One, each kit will include an interactive whiteboard, projector, speakers, computer, operating software and specialized software applications. Connected inquiry tools and data collection devices will be added in Year Two.

Each school will identify a team of teachers/staff to participate. Teams should consist of enthusiastic teachers covering all disciplines including language arts, math, science, special education and other school personnel such as a media specialist or front office staff.

Teams will receive initial training in the use and application of this technology during the summer of 2007. Initial training will present activities covering language arts, math and science topics, emphasizing how the technology can be used to enhance student skills in these areas and how teachers can use the technology to effectively communicate and collaborate. Participants will reflect on the activities presented, how they relate to the Colorado Model Content Standards and how the strategies presented may work in their classroom.

Teachers will be encouraged to test and use all equipment over the summer as they prepare for the upcoming school year. Each teacher will prepare a lesson plan that incorporates *WIRED* technology. Participants will meet together in a Regional Summit to present their lesson plans using the technology and will have opportunity to reflect on and discuss their experiences so far.

Teachers will begin using *WIRED* resources with students at the start of the school year. Coaching support will be provided to teachers on site, available to help with planning, observing or demonstrating classroom activities.

With the start of Year Two in October 2007, *WIRED* laboratories will be purchased for each district that include classroom sets of basic and graphing calculators, digital microscopes, cameras, range finders and measuring probes. Training will be provided to participating teachers in the effective use of these technologies in the classroom. It is our hope for these trainings to partner with the Enhancing Math Education program, a proposed Math Science Partnership being submitted by Fort Lewis College and Montezuma-Cortez School District to serve regional math educators following the end of SCMI. Professional development activities to help teachers integrate technology into their classrooms is an overlapping component of both projects and it makes sense to combine these activities.

Teams will meet regularly to reflect on and plan *WIRED* lesson plans and activities including the new laboratory materials. Participants will attend a regional Summit to participate with additional training, collaborate with other teachers about experiences with *WIRED* technologies and develop plans to use *WIRED* technology resources for a collaborative student project. Teachers will then execute the collaborative student project by the end of 2007. Teachers will follow up with a reflective analysis of this activity and collaborate to prepare a demonstration and report about their experiences for their school boards in early 2008.

Teachers not involved in Year One activities will be encouraged to visit *WIRED* classrooms and meet with participating teachers during the fall. Districts will select a second group of teachers to receive training at the end of 2007. Schools will receive one additional *WIRED* whiteboard kit. Newly trained teachers will arrange a shared technology schedule to rotate the additional *WIRED* kit and laboratory resources through their classrooms for the remainder of the school year.

Teachers in the original Year One group will continue to work with their *WIRED* resources. All participants will be provided release time to visit each other's classrooms and ongoing support including on-site coaching. School and district teams will continue to meet regularly. Regional Summits will be conducted. Teachers will continue to plan, execute and reflect on *WIRED* lesson plans and classroom projects.

Districts will each identify two lead teachers to receive additional training and serve as in-house *WIRED* trainers, able to support the program in future years. In-house trainers will be able to coach other teachers in their buildings using *WIRED* resources and will conduct training sessions for new teachers. Lead teachers will be given the opportunity to attend a regional or national educational conference related to educational technology.

As done successfully with our SCMI program according to program participants, all teacher training will be developed following the Guiding Principles put forth in the Consortium for Policy Research in Education's Policy Brief: *"Helping Teachers Teach Well: Transforming Professional Development,"* June 1995. Groups of teachers resemble typical classrooms in that they include people of all different skill levels and learning

styles. Workshops will be designed to engage teachers with rigorous content, ideas, materials and collaboration with colleagues. Instructors will model constructivist teaching methods by demonstrating effective, open-ended questioning techniques, strategies for differentiated instruction and collaborative learning, and support reflective thinking by teachers about their practice.

Goals and Milestones

WIRED Program Goals:

- Increase student achievement by providing whole-classroom interactive resources with effective, ongoing professional development for teachers that will support learning and help our districts meet their Educational Technology and Information Literacy (ET-IL) goals.
- Support and encourage the use of whole-classroom interactive resources in day to day collaborative interactions: student to student, student to teacher, and teacher to teacher.
- Plan and execute thorough, ongoing evaluation of project impact on teacher practices and resulting student achievement.
- Plan and execute ongoing dissemination of project artifacts including online posting of teacher lesson plans and reflections, student projects, program level training and evaluation materials on website/bulletin board.
- Train and support lead teachers identified by each district to serve as program coaches and in-house trainers able to train and support other teachers in their districts. (Year Two)

WIRED Program Timeline and Milestones:

Year One, April 16 through August 31, 2007

- April/May: Districts/schools select and identify team members to participate.
Baseline evaluation data collected from schools, teachers, students.
Interactive Whiteboard equipment and software specified and purchased.
- June-July: Initial training in use and application of *WIRED* technology provided.
Teachers work independently and prepare lessons using *WIRED* technologies.
Year One progress report and preliminary evaluation completed.
- Aug. 2007: Regional Summit to present teacher lesson plans and prepare for classroom projects.
Students introduced to *WIRED* interactive whiteboards at start of school year.
- Sept. 2007: On-going support and coaching provided on site to participating teachers.
Teachers continue use of *WIRED* technologies and begin classroom projects.
Year One evaluation and final report completed.

Year Two, October 16, 2007 through June 30, 2008

- Oct.-Nov.: Continued support and coaching provided on site to participating teachers.
WIRED laboratory materials purchased and teachers trained in their use during
Regional Summit held for participating teachers.
- Dec. 2007: Participating teachers complete, reflect and report on classroom projects.
Districts/schools identify new participants to receive *WIRED* technology training.
Additional *WIRED* interactive unit purchased for each school.
- Jan. 2008: New teachers begin use of *WIRED* technologies with students.
Continued support and coaching provided on site to participating teachers.
Year Two progress report and preliminary evaluation completed.
- Jan.-Feb.: Teams present *WIRED* program demonstration and report to school boards.
Regional Summit held for participating teachers.
- March 2008: Districts identify lead teachers to receive training as in-house trainers.
Following training, in-house trainers begin to support other teachers on use of *WIRED*
interactive resources.
- June 2008: Participating teachers complete, reflect and report on classroom projects.
Regional Summit held for participating teachers.
- July 2008: Year Two evaluation and final report completed.

Ongoing: Teachers post lesson plans with reflective comments to web site/bulletin board.
Feedback gathered and compiled from teachers and students about their experiences using *WIRED* resources.

Critical Elements

The overall goal of the *WIRED* program is to increase student achievement. Research indicates that the use of multimedia technology in the classroom can raise student achievement by actively engaging and motivating them to learn (C. Kicielinski, *Raising Student Achievement with Technology: Jennings School District, St. Louis*, School Administrator, August 2005.) Research suggests that the use of technology can decrease absenteeism (*The Impact of Technology on Student Achievement*, Apple Computer, Inc, 2002). Interactive whiteboards are especially useful as they appeal to all types of learners including visual, auditory and tactile (W. Beelard Jr., *Student Engagement and Technology: Can Interactive Whiteboards Help?* Action Research Exchange, Summer 2002). And the effective use of technology resources can be particularly beneficial for students with disabilities (*Critical Issue: Using Technology to Improve Student Achievement*, NCREL, 1999 updated 2005).

The *WIRED* program will help schools achieve their ET-IL goals by providing technology resources for teachers to use regularly with their whole classroom, serving as more of an extension of the regular curriculum instead of an independent or special activity. As part of this program, participating teachers will be prepared and expected to lead student-driven, collaborative real world projects using *WIRED* resources. Results and reflections from these and other program activities will be available on-line.

The design of this project is intended to compliment and connect our district's existing ET-IL and general school improvement initiatives. San Juan BOCES and all of its member districts participate in E-Rate programs. Four of our districts, all but Silverton, have instituted Technology Plans with specific ET-IL goals and measures. Silverton is in the process of developing such a plan and is applying independently for a different (separate but compatible) Power Results grant for this year. Bayfield and Durango have both received Power Grant funding from CDE in recent years. This program is especially useful coming on the heels of SCMI which was able to provide top quality, in depth training in the use and application of technology with only a very limited amount of equipment.

Sustainability of the program will be ensured by providing advanced training to teachers in each district who will serve as in-house trainers and coaches for others. Discussion about the use and effectiveness of *WIRED* technology will be initiated will each school district's Board of Directors.

The *WIRED* program will serve to advance the Colorado Model Content Standards in all content areas including math, science, reading and writing:

- *Mathematics Standards 1-6*: "Students... communicate the reasoning used in solving these problems".
- *Science Standard 1*: "Students... design, conduct, communicate about ... investigations".
- *Science Standard 5*: "Students know and understand interrelationships among science, technology ...".
- *Reading and Writing Standard 4*: "Students apply thinking skills to their ... listening and viewing."
- *Reading and Writing Standard 5*: "Students ... make use of relevant information from a variety of media, reference and technological sources"
- Various skills and specific benchmarks associated with the individual lessons delivered using of *WIRED* technology.

Projects/Artifacts

WIRED technology will make it easy for students and teachers to record and share their work. Artifacts will be collected from all project participants and made available on a website/bulletin board. Participants will be encouraged to collaborate through the bulletin board, conversing back and forth about specific lesson plans or any other aspect of the program. These artifacts will provide a solid starting point for other schools and districts wanting to implement similar methods and technology and will include:

- Program Artifacts: syllabus; instructional lesson plans and material lists; evaluation instruments and summarized results.
- Teacher Artifacts: *WIRED* lesson plans with reflective writings and examples of student work.
- Student Artifacts: presentation of individual and group projects.

Evaluation

Ongoing, formative assessments including surveys and questionnaires will be collected from teachers and students and used to assess the links between the program plan, professional development activities and teacher and student outcomes; also for adjusting what isn't working. Feedback will be solicited following each professional development activity and at the end of each program year.

For Year One, summative evaluation will be performed to gauge the impact of program activities on teacher knowledge and skills. In addition to surveys and questionnaires, teachers will demonstrate their skills and command of the technology by actually using the *WIRED* technology to present lesson plans to instructional staff and to each other at the last Summer Workshop.

For Year Two, evaluation will continue to assess teacher practices and begin to track student achievement measures to *WIRED* program outcomes. Results of student and teacher surveys and questionnaires, teacher assessments of student work, student attendance data, and eventually CSAP results will be analyzed in relation to the amount, type, and fidelity of exposure to *WIRED* technology resources.

Baseline and endpoint data will be collected about teacher practices, the use of technology in their classrooms, teacher and student attitudes about technology and learning, and the ET-IL proficiency of students and teachers according to each district's Technology Plan. Schools will provide class lists for participating teachers and attendance records for all students for both the 2006-2007 and 2007-2008 school years. This is to establish a basis for comparison before and after the introduction of *WIRED* technologies. Data will be analyzed comparing information from teachers who do and do not receive *WIRED* materials and training, tracking information about student performance from student surveys, teacher assessments, attendance records, and CSAP results.

Much of the data needed to perform this evaluation is already being collected by schools as part of their ET-IL plans and other concurrent activities such as Safe and Sound School Programs and Wellness Initiatives. We will make every attempt to coordinate and consolidate data gathering activities with each district to avoid the duplication of efforts and to minimize the added time needed for teachers and students to complete the *WIRED* program assessments.

Reports will be prepared midway through each program year following the completion of each program year. All evaluation data will be presented and disseminated in a summarized format grouping students and teachers by the level of exposure to *WIRED* program activities. Every effort will be made to assure the confidentiality of individual student and teacher data.

Dissemination

On-line access to *WIRED* program material is a key element of the project intended to provide a convenient way for participants to collaborate and share what we learn. San Juan BOCES is in the process of creating a website/bulletin board for math educators as part of the follow-up and sustainability plans for SCMI. This site, the Southwest Colorado Math Educator's Forum (www.swcomath.org) will be expanded to serve *WIRED* program participants and include all artifacts and material produced through the program:

- Teacher lesson plans and reflective writings
- Student projects and presentations
- Program-level planning and training materials
- Evaluation instruments and summarized results

Students in *WIRED* classes will be encouraged to use the technology resources to present their work as part of parent-teacher conferences. Participating teachers from each district will collaborate to demonstrate and report on the use of this technology to their school boards.