2010-2011 Title II-D Evaluation Report

Nevada Department of Education

Nevada Department of Education
700 East Fifth Street
Carson City, NV 89701

December 1, 2011

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Nevada Department of Education

Submitted on December 1, 2011

Nevada Department of Education
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Submitted by Kimberly Vidoni

Kimberly Vidoni

Signature

12/01/2011

Date

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Summary of Programs

This document is a compilation of evaluation reports for the 2010-2011 Title II-D Nevada Enhancing Education Through Technology (EETT) grant activities. 2010-2011 grantees were required to submit annual, summative evaluation reports to NDE and grantees were allowed flexibility to choose the evaluator. Included in this report are the grantee evaluation reports submitted to NDE by 2010-2011 grantees.

The 2010-2011 EETT program was comprised of three sections: 1) American Recovery and Reinvestment Act (ARRA) grants, 2) competitive grants, and 3) formula grants. An overview of each section is provided below.

ARRA Grants

Nevada received approximately $4 million in EETT ARRA funds that were distributed competitively to district grantees to participate in a two-year program, the Pathway to Nevada's Future program. Pathway equipped classrooms with digital-age technology and provided online professional development to teachers and principals so they learned the skills necessary for preparing students for 21st century careers.

Pathway is a homegrown, Nevada project that was created by and administered by school district personnel in Clark and Washoe County School Districts. At least two teachers and one principal from each of Nevada's seventeen school districts participated in the program that required teachers and school administrators to immerse themselves in intensive, online professional development. Using technology to provide Pathway professional development was cost effective in that it eliminated travel costs to attend face-to-face professional development activities that can be quite costly in a state as geographically vast as Nevada. Pathway was an extremely successful project that effectively leveraged funds and resources. NDE was pleased to receive a best practices award from the Partnership for 21st Century skills for its innovative approach to classroom technology integration and professional development. The evaluation of this program was conducted by evaluators at the University of Nevada, Las Vegas and submitted as a single report that includes evaluation of all participating school districts' programs. The first section of this report titled *2010-2011 Title II-D ARRA Report* contains the evaluation report for this program.

ARRA Title II-D, Enhancing Education Through Technology FY10 & FY11 Funding	
Consortium Name	**FY2010-11 Funding**
Pathway to Nevada's Future	$4,092,691.44
State Admin	$158,581.56
Total	**$4,251,273.00**

Competitive Grants

Nevada distributed $286,434.03 in competitive EETT funds in 2010-2011 to four grantees. Three grantees were multi-district consortia and the remaining grant was awarded to Nevada's largest school district, Clark County School District. 2010-2011 competitive grants were a continuation of two-year grant programs started in 2009-2010. Since there was a significant reduction of funds between the first and second years of these grant projects, the second year funds were based on the percentage of total 2009-2010 funds awarded to each grantee. The four 2010-2011 evaluation reports are included in the section titled *2010-2011 Title II-D Competitive Reports*. The table below is an itemization of Nevada EETT competitive funds for the 2009-2010 fiscal year.

Title II-D, Enhancing Education Through Technology FY09 Competitive Funding	
Districts	**Allocations**
Washoe, Douglas, Lyon County School Districts	$71,522.58
Clark County School District	$74,157.77
Churchill, Humboldt, Lander, Mineral, Nye, Pershing, Storey County School Districts	$75,647.23
White Pine, Lincoln County School Districts	$65,106.45
Total	**$286,434.03**

Formula Grants

NDE distributed $286,434.03 in formula EETT funds to all seventeen Nevada school districts. Grants ranged from $38 to $221,000. The chart below depicts the amounts allocated to each district. Submission of evaluation reports were required for grantees receiving more than $25,000 of which only two districts met this criterion, Clark and Washoe County School District. Humboldt County School District flexed funds into Title II-D and thus, also submitted an evaluation report. Evaluation reports submitted by the three districts are included in the section titled *2010-2011 Title II-D Formula Reports*.

Title II-D, Enhancing Education Through Technology FY09 Formula Funding	
Districts	**Allocations**
Carson	$ 4,471.48
Churchill	$ 2,220.79
Clark	$ 220,914.43
Douglas	$ 1,704.42
Elko	$ 2,496.01
Esmeralda	$ 38.32
Eureka	$ 87.54
Humboldt	$ 1,177.27
Lander	$ 339.83
Lincoln	$ 381.46
Lyon	$ 3,216.37
Mineral	$ 563.30
Nye	$ 4,547.08
Pershing	$ 584.07
Storey	$ 109.49
Washoe	$ 42,974.57
White Pine	$ 607.62
Total	**$ 286,434.03**

District Evaluation Reports

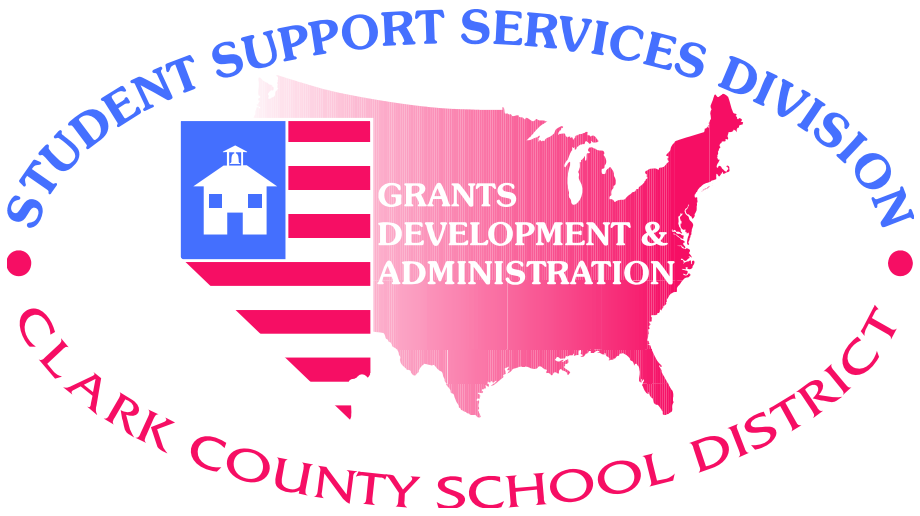
The remainder of this report is comprised of the evaluation reports submitted by 2010-2011 Title II-D grantees. Evaluations were conducted over the course of the grant year and were submitted in November 2011.

20мл-201м Title II-D ARRA Report

CLARK COUNTY SCHOOL DISTRICT

ARRA-Pathways Project
(CCSD Grant #980)

FINAL REPORT FY 2011



ARRA EETT Competitive

FY11 Final Report

Project Description

On Feb. 17, 2009, Congress passed the American Recovery and Reinvestment Act of 2009 at the urging of President Obama, who signed it into law four days later. A direct response to the economic crisis, the Recovery Act has three immediate goals:

1) Create new jobs and save existing ones
2) Spur economic activity and invest in long-term growth
3) Foster unprecedented levels of accountability and transparency in government spending

The Recovery Act intended to achieve those goals by:

1) Providing $288 billion in tax cuts and benefits for millions of working families and businesses*
2) Increasing federal funds for entitlement programs, such as extending unemployment benefits, by $224 billion*
3) Making $275 billion available for federal contracts, grants and loans*
4) Requiring recipients of Recovery funds to report quarterly on how they are using the money.

All the data is posted on Recovery.gov so the public can track the Recovery funds.

The Pathway to Nevada's Future project was a statewide initiative intended to change teachers' technology integration practices through the development and implementation of an online professional development program. Additionally, the project intended to identify appropriate packages of effective classroom technology.

The Pathway project grew out of the Nevada Educational Technology Plan and statewide concern about student engagement and achievement. Participating teachers and administrators took part in a two-year professional development program, funded through Federal ARRA. The project was focused on recognizing and addressing the needs of 21st century students through the framework of the revised Nevada Educational Technology Standards, which align to the National Educational Technology Standards for Students (NETS-S).

Goal: The *Goals* of this project were:

1. Change teacher behavior through online, collaborative professional development about technology integration;
2. Determine packages of effective classroom technology resources and professional development for planning and budgeting purposes.

These objectives relate to the overall goal of increasing student achievement by providing engaging and motivating classroom experiences made possible by technology integration.

Evaluation Procedure/Project Results

The following pages contain the final report conducted by Drs. P.G. Schrader and Neal Strudler, with cooperation from all Nevada school districts involved in the grant.

Pathway to Nevada's Future:

Final Report

P.G. Schrader and Neal Strudler

Prepared for: Loretta Asay
Title: Coordinator, Instructional Technology
Curriculum and Professional Development, CCSD;
Project Manager, Pathway to Nevada's Future Project

Date: November 1, 2011

Prepared By:

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Executive Summary

This document reports the findings associated with the planning, development, and implementation of Years 1 and 2 of the Pathway to Nevada's Future project. Year 1 covers the timeframe from November 2009 until September 2010 and Year 2 covers the period from October 2010 until September 2011. Data sources include online surveys, online discussions, module artifacts, project meetings, classroom observations, and interviews of teachers, administrators, and project personnel.

During the planning phase, the milestones outlined in the grant proposal were accomplished. In terms of project implementation, all Modules 1, 2, 3, and 4 were designed, developed, and implemented. The modules were delivered via an online course management system, Moodle, which hosts content as well as the social interaction component to the Pathway Project. In addition to serving resources, assignments, and materials, this system allows a common, virtual location for participants to discuss topics, exchange ideas, and respond to questions.

Summary of Findings

- *Attitudes Toward Technology:* Participation in the Pathway project promoted significant increases in many areas, but had the greatest positive impact on participants' attitudes toward tools related to pedagogical tasks that require training, especially those targeted by the project (e.g., *development tools*, *interactive tools*).
- *Self-Efficacy with Technology:* Participants' self-efficacy associated with *pedagogical tasks* steadily increased throughout the project. Participants' comments also reflected substantial gains in their attitudes, confidence, and self-efficacy associated with Pathway tools.
- *TPACK:* All categories of TPACK significantly increased throughout the duration of the project. Further, this increase was steady and consistent, though it was not due to any module in particular.
- *Community of Practice:* A community of practice was promoted and developed early in Module 1. This continued throughout the project, although it was not as supportive of the Collaborative Nevada Project as was hoped.
- *Engagement:* Students exhibited higher levels of engagement, on task behavior, and task completion. In particular, participants reported that student engagement increased in content areas like literacy and science.
- *Technology Learning:* Participants reported high levels of learning about 21st century tools and pedagogies.
- *Student Achievement:* Participants reported much anecdotal evidence of increased student learning resulting from engagement with project technologies.
- *Technology into Practice:* Participants reported increased use of the Pathway tools toward the end of the professional development. In nearly all cases, the implementation of these tools was consistent with the project's goals.
- *Leadership:* Many participants reported sharing their new understanding with peer teachers. Some reported taking additional initiative to help train others and advance the integration of technology in their schools.
- *Overall Challenges*:
    - Time: Participants spent considerable time on assignments early in the project. This was addressed through changes to content and structure.
    - Voluntary Participation: Individuals who volunteered participated in a different way than those who were recruited. Some newer recruits were seen as "reluctant participants" by facilitators and were not necessarily personally invested in technology or the project.
    - Collaboration: Collaboration was a challenge throughout the project. The requirements for collaboration fluctuated. During Module 1, high levels of participation were required. During Module 2, these were reduced based on participant feedback. These were re-introduced as a mechanism of the Collaborative Nevada Project, with mixed outcomes. While some considered collaboration a positive, it remained for others a barrier to a positive learning experience.

- Administrators: Due to various challenges, administrators' participation in the project was limited. Although this may have been an appropriate decision and made for justifiable reasons, there was a gap between administrator activities and the activities of teacher participants. This may be a problem when considering the support required for projects of this nature.
- Support: Support of both participants and facilitators was instrumental in the success during the project. Even in the deployment of a cost-effective model for Pathway in the future, this will continue to be a challenge.
- Attrition: Consistent participation is a challenge as participants leave teaching or change schools. During Year 1, approximately 33% of participants changed in some way, followed by less attrition in Year 2. Further, participants who did not complete the assignments, rather than formally quitting the project, defined attrition in Year 2.

Summary of Recommendations

To date, there has been discussion of two distinct future possibilities associated with the Pathway Project. As such, these recommendations are divided into categories. First, we outline general recommendations that apply to any future version of Pathway. Second, we outline recommendations that apply to a version that relies on an additional round of funding. And finally, we outline cost-saving alternatives that would be necessary when considering a smaller and/or unfunded version of the project.

- General Recommendations:
    - *Equipment:* Equipment should be available prior to the beginning of any professional development.
    - *Focus Activities:* Activities should be focused and manageable, as they were in Modules 3 and 4.
    - *Differentiated Scheduling:* Smaller, manageable groups (e.g., content area groups) that can still interact as a community (e.g., groups of 40-60 participants) should be examined for future modules.
    - *Continue to Build Communities of Practice:* Fostering communities of practice should remain a goal of instruction, whether or not an individual module is comprised of independent work.
    - *Extend Communities:* It may be beneficial to extend communities beyond participation in specific modules.
    - *Administrators:* It is recommended that administrator training become an integrated component of the project. Their involvement should take a form that is appropriate to their role in schools (e.g., evaluators, facilitators, administrators).
    - *Depth vs. Breadth/Differentiation:* Participants expressed a desire to probe further into many topics based on their teaching context and individual preferences. This could provide further opportunities for added personal value and differentiated instruction.

- Additional Iteration with Funding:
    - *Continued Support:* It is recommended that facilitators continue their high level interaction with participants. This would require full time, financial support. It is recommended that facilitators continue to work in teams.
    - *Moodle Organization:* It is suggested that facilitators continue dialogue (e.g., via emails, forums, or surveys) with participants to ensure that changes to Moodle are optimal and well received.
    - *Balance Activities:* It is recommended that facilitators target a balance between collaboration and independent, focused activities.
    - *Collaborative Nevada Project:* Participants might be more open to this project if afforded other options to structure the collaborative projects. Examples include in-school partnerships, across district partnerships, content partnerships, or other partnerships using electronic means. Providing choice would help limit the stress associated with the CNP.

- Additional Iteration on Smaller Scale:
    - *Focus Activities:* Activities should be focused, perhaps limiting the scope of offerings.
    - *Differentiated Activities:* It may be useful to allow participants to further differentiate their assignments and work to align with their own interests.
    - *Communities of Practice:* A well-developed community of practice may alleviate the need for high levels of facilitator oversight. This is one way to reduce cost.
    - *Facilitation:* Ways to decrease the demands on and demands for facilitators should be explored and identified. These could include a “train the trainer” model in which previous Pathway graduates become facilitators in support of or as an alternative to some of their current duties.

Table of Contents

The following sections and information are presented in this report:

1. Introduction

i. Summary of Grant Intent

The Pathway to Nevada's Future project is a statewide initiative intended to change teachers' technology integration practices through the development and implementation of an online professional development program. Additionally, the project is intended to identify appropriate packages of effective classroom technology.

The Pathway project grew out of the Nevada Educational Technology Plan and statewide concern about student engagement and achievement. Participating teachers and administrators are taking part in a two-year professional development program, funded through Federal ARRA. The project is focused on recognizing and addressing the needs of 21st century students through the framework of the revised Nevada Educational Technology Standards, which align to the National Educational Technology Standards for Students (NETS-S).

There are two primary objectives of the Pathway project, to: 1) change teacher behavior through online, collaborative professional development about technology integration; and 2) determine packages of effective classroom technology resources and professional development for planning and budgeting purposes. These objectives relate to the overall goal of increasing student achievement by providing engaging and motivating classroom experiences made possible by technology integration.

All of the professional development is being conducted in an online environment. Curriculum specialists, online technology experts, and higher education professors are working together to develop and refine four modules. The modules will be archived for future professional development needs across the state. To facilitate the implementation of strategies learned, each participating teacher has access to a minimum set of technological tools, including student laptops and mobile handheld devices (iPod Touches). Data are being gathered on the use of these tools throughout the project to inform future budgeting, planning, and professional development.

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ii. Initiating the Project

The Nevada Pathway Project reflects an extensive collaboration between school districts across the state to provide professional development for selected teachers that support and enhance teaching and learning with technology. In considering the number of entities involved, the project has done quite well in implementing the scheduled activities outlined above. Several synchronous online meetings enhanced project planning and implementation with district representatives serving on the project's advisory committee. Meetings were conducted and archived through Clark County School District's Centra system and consistent efforts have been made by project leaders to set a collaborative and inclusive climate for the advisory meetings.

2. Summary of Progress

i. Planned Activities and Accomplishments

Contact with project staff and personnel officially began in November 2009. Although planning began in May, the official grant documents and funding were completed in late November. This marked the official beginning of the Pathway Project. Pathway training activities continued through late May 2011. Reporting and evaluation continued through October 2011. Throughout its duration, the Pathway Project accomplished numerous goals and completed several activities associated with the management, implementation, and evaluation of the project. Table 1 outlines the activities that were described in the grant proposal, their anticipated completion date, and the date they were completed.

Table 1. Pathway Activities and Accomplishments

Management	*Planned Completion*	*Completion Date*	*Data Source/Evidence*
Hire Curriculum Specialist	September, 2009	September, 2009	Hired Terra Graves Sara Stewart was introduced as a facilitator, but funded by a separate grant
Personnel briefed	September, 2009	September, 2009	Centra Meetings
Calendar for Year 1	September, 2009	September, 2009	Grant Document, Meeting Notes
Contracts with consultants and evaluators	September, 2009	January, 2010	Signed contract, data collection
Coordinate credit options	October, 2009	December, 2009	UNLV Course Listing: CIT609
Recruit participants and administrators	September – October, 2009	December, 2009	Orientation: http://cpdmoodle.ccsd.net/
Hire tech support	August, 2009	August, 2009	Contracted with Apple One Employment for Moodle technician
Provide support to teams	December, 2009 – May, 2011	December, 2009 – May, 2011	http://cpdmoodle.ccsd.net/
Implementation	*Planned Completion*	*Completion Date*	*Data Source/Evidence*
Develop/Plan PD	September – December, 2009	December, 2009 – January, 2011	http://cpdmoodle.ccsd.net/
Establish Teacher goals	December, 2009 – January, 2010	January, 2010 – January, 2011	
Equipment Purchases	August – October, 2009	November, 2009 – January, 2011	Budget and purchasing records
Pre-tests and surveys	January, 2010	January, 2010	Section 7, this document
State Tech Conference 2009	October, 2009	October, 2009	Widespread participation
Online PD (Module 1)	January, 2010 – May, 2010	January, 2010 – May, 2010	http://cpdmoodle.ccsd.net/ (see below)
Summer PD (Module 2)	June, 2010	June – July, 2010 (3 sections)	http://cpdmoodle.ccsd.net/ (see below)
Online PD (Module 3)	September, 2010 – Dec, 2010	September, 2010 – Dec, 2010	http://cpdmoodle.ccsd.net/ (see below)
Online PD (Module 4)	January, 2011 – May, 2011	January, 2011 – May, 2011	http://cpdmoodle.ccsd.net/ (see below)

Evaluation	*Planned Completion*	*Completion Date*	*Data Source/Evidence*
Data collection: Module 1	September, 2009 – May, 2010	May, 2010	Appendix A
Data collection: Module 2	June, 2010 – July, 2010	July, 2010	Appendix A
Data collection: Module 3	September, 2010 – Dec, 2010	Dec, 2010	Appendix A
Data collection: Module 4	January, 2011 – May, 2011	May, 2011	Appendix A
Interim Report 1 (Module 1)	January, 2010; June, 2010	August 24, 2010	Report on file
Interim Report 2 (Module 2)	July, 2010	October 3, 2010	Report on file
Interim Report 3 (Module 3)	December 10, 2010	January 17, 2011	Report on file
Interim Report 4 (Module 4)	May 11, 2011	October 31, 2011	Integrated into final report
Year 1 Summative Report	October 1, 2010	October 4, 2010	Report on file
Pathway Final Report	September 1, 2011	November 1, 2011	This document

ii. Important Events and Milestones

The key events and landmarks during the implementation of Year 1 are outlined below:

- Participation in Pathway began:
  - November 20, 2009
- Webinars:
  - Cheryl Lemke: December 1, 2009 (first webinar)
  - Dr. Dan McCormack, Apple Inc.: April 14, 2010 (optional)
- Registration for University Credit:
  - Late December
- Module 1: Building Knowledge and Skills:
  - Five blocks: January 20 - May 11, 2010
- Module 2: Setting Goals and Project Planning:
  - Session 1: June 7 – June 25, 2010
  - Session 2: June 14 -July 2, 2010
  - Session 3: July 12 – July 30, 2010
- Module 3: 21st Century Skills in Action:
  - Two Blocks: September 22 – December 7, 2010
- Module 4: Reflecting for Change:
  - January 26 – May 31, 2011
- All Pathway Work Completed:
  - November 1, 2011

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iii. Scheduled Activities/Objectives/Milestones Not Accomplished

All activities and objectives that were planned during the project have been completed. However, some activities and their schedules were adjusted. As noted above, during Year 1, it was necessary to make some curricular changes to the online professional development. In particular, coordinators adjusted the workload and their expectations based on participant feedback. In addition, grant awards, approvals, and contracts were completed during November 2009, December 2009, and January 2010. As a result, some planning and implementation was necessarily postponed (e.g., the initial evaluation report). Year 2 progressed much more smoothly, due to the increased understanding, experience and familiarity with the project on the part of the coordinators. Dates of completion can be found in Table 1.

3. Online Professional Development

i. Moodle Course Management Software

The Online Professional Development is delivered via Moodle, a course management system. Moodle was chosen because it was open-source and involved no additional cost to acquire the software. A server was purchased, configured and maintained through separate funding. Further, Moodle has a long history of providing an excellent environment for distance learning and course delivery. Moodle allows for a wide range of interaction among instructors and students. More importantly, Moodle logs user interaction, participation, and all of their contributions. Additionally, there are hundreds of plug-in modules that may be added to extend the functionality of Moodle to meet the varied needs of Pathway's online professional development. As a result, this system was selected to deliver the project as well as collect data about its participants.

Participating teachers were assigned to one of eight small groups—two for English language arts, two for mathematics, two for science, and two for social studies. In addition larger groups were configured for each of the subject area groups (i.e., one for English language arts, one for mathematics, one for science, and one for social studies) and an "All" group includes all participants for broad discussion topics.

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ii. Module 1 Content

The content of Module 1 primarily involved an overview of resources, tools, and strategies intended for a variety of settings (see Figure 1). Activities ranged from conceptual readings, webinars, videos, and discussions, to hands-on assignments that exposed participants to a range of tools. Results indicated that participants significantly increased in their knowledge, attitudes, and self-efficacy associated with technology and technology integration. Further, a valuable community of practice was created in which participants became comfortable sharing ideas with and helping each other. However, analysis of progress, assignments, and online discussions indicated that the amount of material was overwhelming for many of the participants. Time spent completing assignments was a significant barrier for many participants. Further, the organization of Moodle was not extremely clear for all participants. As a result, adjustments to the delivery of Module 1 were implemented during the professional development. Changes were well received and participants' experiences were positive overall.

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iii. Module 2 Content

The content of Module 2, titled *Setting Goals and Project Planning*, was offered in three separate, three-week sections during the summer of 2010 (see Figure 2). For their convenience, Pathway teachers had the option of participating in one of these sessions that were offered June 7-25, June 14-July 2, and July 12-30. The module included several hands-on assignments and exposed participants to a range of tools. These included two major learning activities: 1) participants created a website to house their Measurable Achievement Plans (MAPs) and portfolios, each of which were introduced in Module 1; and 2) participants pursued self-directed, individualized study in what was called the *Monster Training Garage*. This component included a wide range of suggested topics from which to choose. In addition to the variety of materials and activities, Module 2 included optional group discussion forums.

1. *MAP.* Participants' professional websites were created using Google Sites to showcase key work undertaken and outcomes achieved in the project. Google Sites was selected because it is relatively easy to use and it works well with other Google tools introduced in the project (Docs, Calendar, Picasa, etc.). A template was provided to help guide the process. Teachers were assigned to post their MAPs ongoing portfolio, both of which were begun in Module 1. The MAP is a variation of action research to be implemented in Module 3 and possibly Module 4.
2. *Monster Training Garage.* This activity was designed to allow participants to delve deeper into learning more about specific technology tools, concepts, and resources. They were given options

to work through a number of tutorials that provide "how to" instruction in available tools such as *MS Office, Google Tools, iWork, Edmodo, Jing, Prezi, PB Wiki, multimedia creation, blogging, podcasting, digital storytelling, and Slideshare.* Options for research plans included *various iPod and iTunes resources, Thinkfinity, Route 21, and Edutopia.* A total of 28 options were given including the option to propose exploring resources beyond those listed. Figure 2 displays the organization and layout of Module 2 content.

The theoretical orientation of the project continued to be driven by a vision for how learning and teaching should change and a framework for what students should know and be able to do based on the Nevada Educational Technology Standards (based on the NETS-S) and the Partnership for 21st Century Skills (P21). In addition, the project employed the TPACK framework (Koehler & Mishra, 2008; Mishra and Koehler, 2006) for guiding learning activities for teacher development and curriculum implementation.

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iv. Module 3 Content

The content of Module 3, titled 21st Century Skills in Action, was offered during the fall of 2010 (see Figure 3). The module followed a *Pioneer* theme and included a variety of collaborative and training activities around that theme (e.g., campfire chats, trading post activities, etc.). Tutorials addressed 21st century skills and self-evaluation. Participants were allowed to choose their own topic from a large list (i.e., *Trading Post*). Participants were also asked to review the work of their peers as well as collaborate on a large-scale group project, which cut across content areas and geographic boundaries. Activities in Module 3 allowed participants to track and record their progress. The Module 3 discussion forum, intended to allow participants' the chance to share their experiences, was optional.

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v. Module 4 Content

The content of Module 4, titled *Reflecting for Change*, was offered during the spring semester of 2011 (see Figure 4). The purpose of this module was to allow participants the opportunity to complete their action research, submit their work, and reflect on their progress. Participants were also asked to give presentations to fellow faculty members in their schools, which was to address their experiences in the Pathway Project. The module followed a *Final Frontier/Space* theme (e.g., *Galaxy Quest MAP activity, Shining Star lesson examples, etc.*). One exception appeared to be an activity focused on 21st century skills and video games. The forum, *Pathway Space* Station, was required and included as a means to reflect on the things that were the most valuable elements of the project.

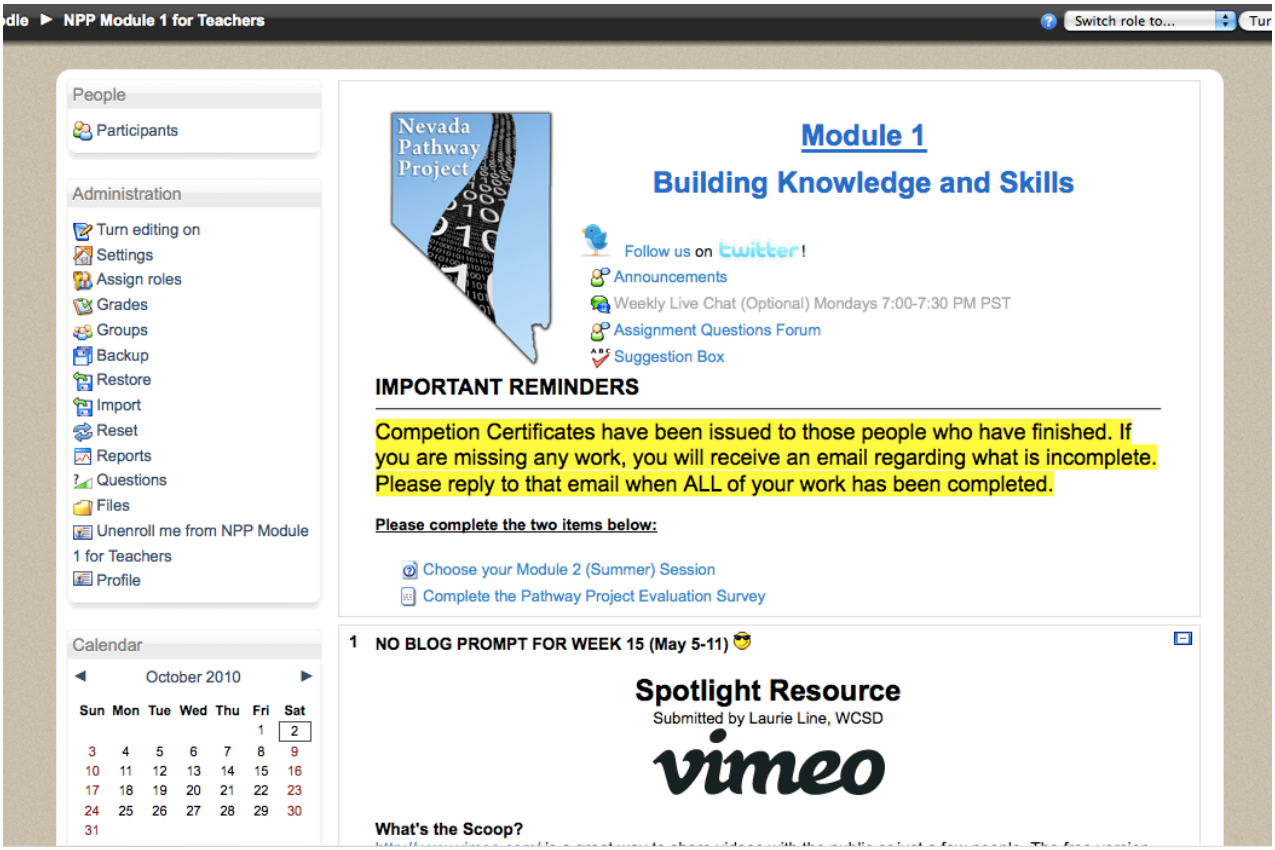

Figure 1. Content of Module 1

Figure 2: Content of Module 2

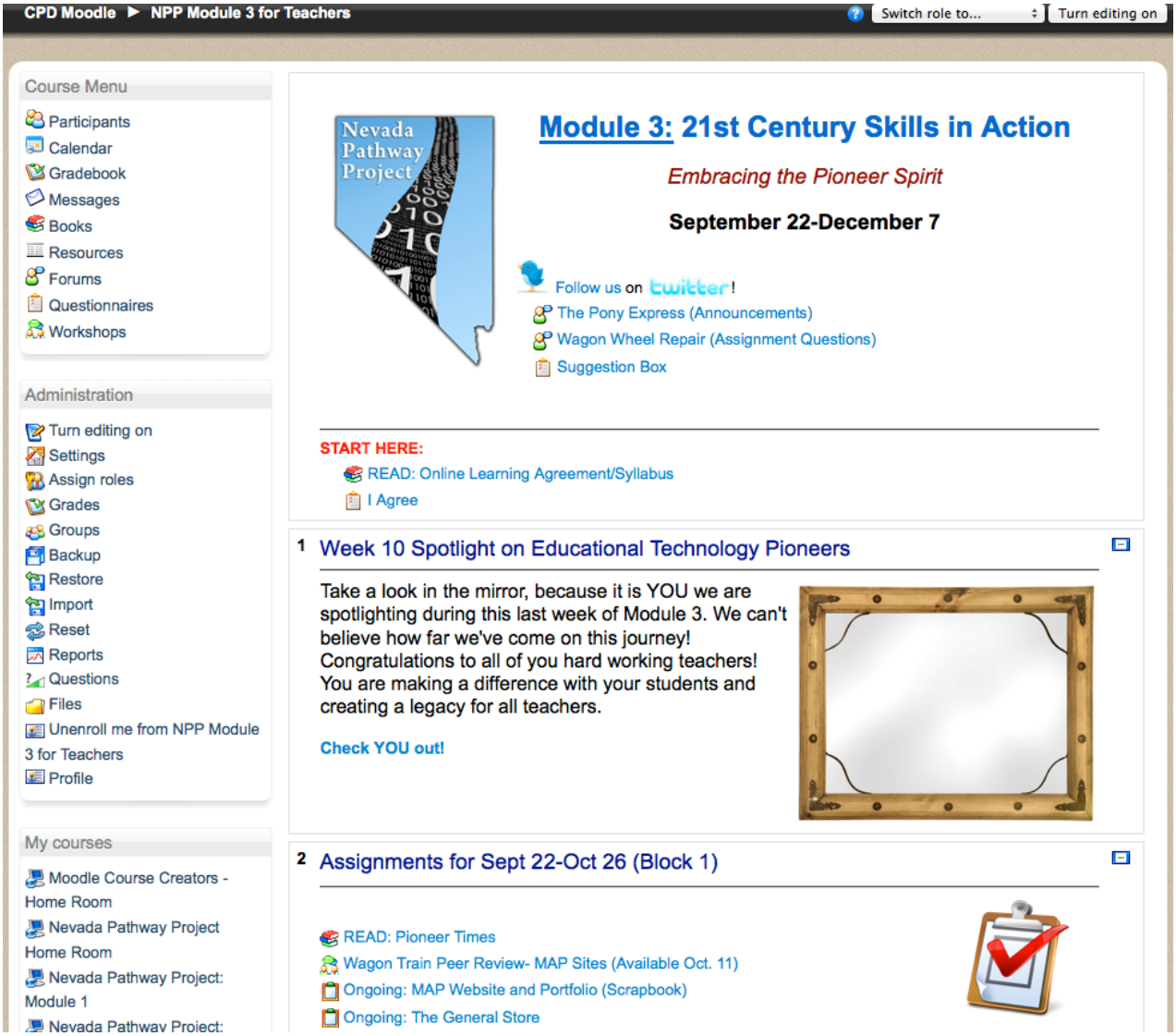

Figure 3. Content of Module 3

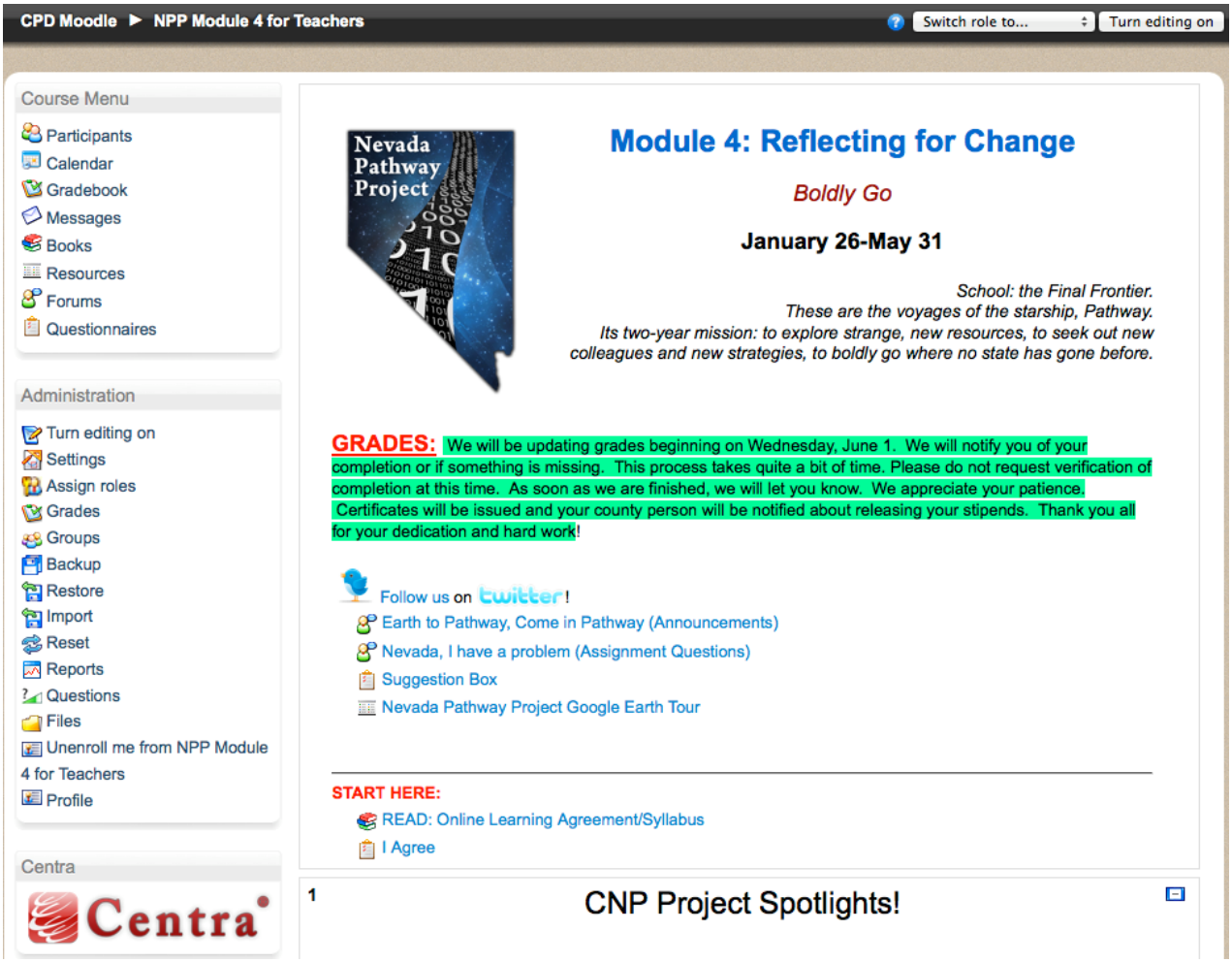

Figure 4. Content of Module 4

4. Review of Pathway Activities

During Year 1, several modifications were made to the Modules and approach to instruction. For example, facilitators reworked the overall layout early in Module 1. This approach was extended into the remaining Modules 2, 3, and 4. Interviews with facilitators and a review of participant comments confirmed that these design and content changes were helpful in improving navigation, clarity of content, and reduction of stress throughout the project. The key changes during Modules 1 and 2 that persisted throughout are outlined below.

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i. Modifications to Module 1

Based on participant feedback through emails, comments, and discussions, facilitators reported making several modifications during the implementation of Module 1. As evident from the open-responses, a key challenge to the Pathway Project involved time and the complexity of assignments. Pathway instructors indicated that they received numerous emails detailing the tremendous time involved in completing the assignments. This trend was confirmed by tracking surveys administered from Moodle, allowing facilitators to quickly determine how much time participants spent on each block. In some cases, the time spent was 10 or more hours in excess of the time anticipated. Based on this feedback, the facilitators opted to reduce the number of assignments and created weekly checks to avoid overloading project participants.

Another prominent change involved altering the Moodle layout. For example, assignments were changed to give them a visual "priority." Further, content was delivered in blocks and the most recent block was moved to the top of the page. Previous blocks were arranged in order from the most recent toward the top of the page to the oldest toward the bottom of the page. This contrasts to the standard organization of Moodle, which sequences activities in a linear progression down a single page. Although this change did not solve all of the clarity issues, a review of participant comments confirmed that these design changes were helpful in improving navigation and clarity for some.

Participants' comments in Moodle suggested that these changes were well received and helped contribute to what appears to be a very positive online environment. Although participants expressed a desire for additional time to experiment with the technology and tools involved in the project, the facilitators appear to have achieved a pragmatic balance between structured professional development activities and time for experimentation. The facilitators confirmed their efforts in this regard in interviews and have incorporated greater flexibility in some of the subsequent learning activities and the overall approach to Module 2.

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ii. Modifications to Module 2

Unlike Module 1, which lasted several months, Module 2 was approximately three weeks in duration. Further, Module 2 was divided into three sections, which allowed a better facilitator-to-participant ratio. This change provided greater flexibility for participants to schedule their work in Pathway. In addition to accommodating schedules, facilitators reduced the content demands during Module 2. Participants also worked somewhat independently on their projects and there were no required discussion forums in Module 2. These changes were significant compared to Module 1, which involved considerable interaction among participants over an extended period of time.

When asked about possible modifications to Module 2, both facilitators stated that they wouldn't change anything for future iterations. They liked having the option of three sessions and appreciated the opportunity to interact with fewer students at one time. They did, however, state that some content from Module 1 perhaps should be saved for Module 2, which would necessitate some reorganization of the content presented. Overall, these changes allowed the opportunity for participants to focus on their own interests with considerable flexibility and allowed facilitators to more easily manage the Module and provide meaningful input to participants.

iii. Participation and Attrition

The online professional development software (i.e., Moodle) logs user interaction, participation, and all of their contributions. As a result, this system was leveraged to collect information about the state of the online professional development during Year 1. These data indicated that the project involved 189 total participants including school administrators, participating teachers, project coordinators, and project staff. Of these, 38 did not access the online professional development. However, 131 participating teachers were actively engaged in the online professional development at some point during Module 1. Reports indicate that only eight teacher participants were inactive for more than four weeks and 12 were inactive for more than three weeks during Module 1.

Due to the duration of Module 2, the best indicator of participation is the MAP project. It was reported that 118 participants successfully completed Module 2. A listing of MAPs submitted included URLS for 116 websites. This represents a completion rate of 98.3% for the participants engaged in Module 2.

During Module 1, several participants were unable to continue their participation in the Pathway project. Reasons include reduction in workforce separation from teaching (RIF), voluntary separation from teaching, changing schools, or voluntary separation from the project. In one unfortunate case, a participant died. The majority of these participants were replaced and some additional participants were introduced to the project. Collectively between Modules 1 and 2, there was nearly a 33% change in participation. The following table highlights the changes in participation by content area and district.

During year 2, it was generally agreed that no participants would be added in replacement of those who left the project. This was due to a combination of issues, from the amount of content that must be covered in a short amount of time to the inability to integrate into a community of practice. As a result, the following table reflects the attrition statistics relevant to the project based on available data and records.

However, although there were no additions during year 2, a few participants failed to complete their final projects. Of the 101 participants who began Module 4, 89 completed their assignments while 12 did not. According to the facilitators, these individuals also had difficulty completing previous modules on time. In one case, there was a personal issue. Although these participants maintained their enrollment in the project, their lack of completion is important to note.

Table 2: Pathway Attrition and Change in Teacher Participation

County	Initial Number of Teacher Participants	Module 1 Attrition	Module 2 Attrition	Year 1 Additions	Year 1 Changes	% Change
Carson	4	1	1	0	2	50.00%
Churchill	4	0	0	0	0	0.00%
Clark	65	20	2	1	23	35.38%
Douglas	4	0	0	0	0	0.00%
Elko	6	0	0	0	0	0.00%
Esmeralda	3	0	3	0	2	66.67%
Eureka	2	0	1	0	1	50.00%
Humboldt	2	2	0	0	2	100.00%
Lander	2	0	0	0	0	0.00%
Lincoln	2	1	0	0	1	50.00%
Lyon	4	0	0	0	0	0.00%
Mineral	2	0	0	0	0	0.00%
Nye	4	6	1	0	7	175.00%
Pershing	2	1	0	0	1	50.00%
Storey	2	0	0	0	0	0.00%
Washoe	14	0	0	0	0	0.00%
White Pine	4	2	0	0	2	50.00%
Total	*126*	*33*	*8*	*1*	*41*	*Overall Change: 32.54%*

5. Evaluation Methods

The Pathway Project is highly complex, involving numerous entities, outcomes, and variables. The two main objectives of the project are to: 1) change teacher behavior through online, collaborative professional development about technology integration; and 2) determine packages of effective classroom technology resources and professional development for planning and budgeting purposes. This evaluation employed a mixed methods approach to evaluate these objectives, triangulate the results and contextualize inferences. Data included quantitative data from various instruments, qualitative interviews with project facilitators, participant artifacts, and forum discussions. Data were gathered using a battery of instruments administered to all participants, once during orientation (baseline) and at the end of each module.

Additional data sources include all online discussions within the modules, a review of teacher and student artifacts posted on the teachers' websites including their MAPS, blog reflections, and student work samples, classroom observations that represent a cross section of content and geographical areas (see Table 3), teacher and administrator interviews (see Table 4), interviews with project staff, and field notes from planning meetings with project staff and the project's advisory board. This content was reviewed, coded, and analyzed for themes to draw inferences regarding the overall goals and objectives of Pathway. Overall, a huge amount of data was gathered and reviewed to address the evaluation questions. This report examines progress and findings associated with the project overall.

Table 3: Classroom Observations by County

County	Number
Carson	1
Clark	13
Douglas	3
Washoe	4
Total	**23**

Table 4: Teacher/Administrator Interviews by County

County	Number
Carson	1
Clark	13
Douglas	3
Washoe	6*
Total	**23**

*Includes 2 administrators

i. Objective 1: Change Teacher Behavior

Researchers have identified a link among cognitive, affective, and psychomotor domains when examining dispositions, knowledge, and behaviors (see; Alexander, 2003; Alexander, Jetton, & Kulikowich, 1995; Bloom, Englehart, Frost, Hill, & Krathwol, 1956), particularly as it pertains to interventions, training, or human performance (Schrader & Lawless, 2004). Specifically, research indicates that these domains are interrelated. A high self-efficacy associated with technology typically corresponds to high levels of technology use. Similarly, one's disposition toward technology (or teaching with technology) is related to teaching behaviors. To positively impact behavior, it is necessary to address all components within this paradigm (Ertmer & Ottenbreit-Leftwich, 2010; Schrader & Lawless, 2004).

As a result, three separate survey instruments were developed by the evaluators to measure

participants' attitudes, dispositions, and self-efficacy associated with educational technology and teaching with technology. Further, items from a Technological, Pedagogical, and Content Knowledge (TPACK) scale were adapted from an existing set of items developed by Schmidt et al. (2009). Items on the Attitudes Toward Technology Tools survey pertained to questions about technology in general and its potential in education. Items on the Dispositions Toward Teaching with Technology survey pertained to teachers' perceptions of technology and its role as an educational tool. The items on the Self Efficacy survey pertained to participants' confidence in performing a variety of tasks (e.g., building a web page, emailing attachments) that involve technology. Finally, the items on the TPACK survey involved participants' evaluation of their technological, pedagogical, and content knowledge and were intended to offer insight into teachers' pedagogical practices.

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ii. Objective 2: Effective Strategies for Online Professional Development

The second objective concerns the nature and delivery of the online professional development. As a result, different data and methods were necessary to capture the dynamics of participant interaction and facilitator involvement. Specifically, all course materials and online discussions within the Moodle forums, interview transcripts, and field notes were exported as text files and coded using HyperRESEARCH Qualitative Analysis Tool. Qualitative analyses followed a constant comparative method and continued throughout the Module (Strauss, 1987), Data were triangulated as a review of documents, materials, and field notes from Pathway served to confirm the trustworthiness of data gathered (Lincoln & Guba, 1985).

Materials were read, reviewed, and coded. Codes began with a common set that established by the researchers and guided by the evaluation questions. Codes were revised as necessary to reflect the data that were analyzed. Participants were also asked to list "3 things you think are going well", "3 things you would improve, " and "3 things you hope to learn before the end of Pathway." Responses were examined for similarity and like responses were combined. From these data, it was possible to identify aspects of instruction that facilitated learning as well as suggestions for improving the project.

6. Evaluation Results

i. Demographic Results

Participants in the Pathway project were asked to complete a demographic questionnaire before the beginning of Module 1. Although there have been some changes in project participation since that time (see Table 2 for attrition), the following results reflect the demographics of Pathway participants based on the pretest data. At that time, several attributes were shared among participants in the project. Nearly equal numbers of participants reported having a Bachelors (32.9%), Masters (29.4%), or Masters +30 (36.5%) as their highest degree. One participant reported having earned a doctorate. The most common ethnicity reported was white (78.9%). Other ethnicities represented were: Black (4.4%), Hispanic (3.3%), Asian or Pacific Islander (3.3%), and American Indian or Alaskan Native (2.2%). A total of 7.8% did not report an ethnicity. In terms of age, participants ranged from 22 to over 55 years of age. The most common age range was 35-39 (22.2%), but there were comparable numbers of participants reporting that their ages fell between 30-34 years (15.6%) and 40-44 years (16.7%).

In addition to general trends in demographics, baseline data for each of the surveys were collected and examined to describe the general profile of Pathway participants. Due to the possible influence of attrition, a similar analysis was conducted for each Module. In general, findings confirmed that participants indicated that they held a high opinion of the role of technology in the classroom and reported being moderately skilled in technology use. There were many areas, however, in which they were not skilled and had room to benefit from the planned modules. Overall, these data suggest that the population of Pathway participants was an appropriate cross section of teachers across the state and the group was well suited to interact with the professional development materials, provide formative feedback for refining the modules, and apply their learning in classrooms across Nevada.

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ii. Baseline Results: Pretest

Participants completed a number of Likert-type survey instruments designed to measure their attitudes toward technological tools, dispositions toward teaching with technology, technology self-efficacy, and their Technological, Pedagogical, and Content Knowledge (TPACK). Surveys were created and scored on 1 to 5 scales. The Attitudes scale was scored (1) not at all useful to (5) extremely useful with a not applicable option (n/a) if they were not familiar with the tool. The Disposition and TPACK scales were scored (1) strongly disagree to (5) strongly agree. The Technology Confidence scale was scored (1) not at all confident to (5) extremely confident with an n/a option if they were not familiar with the tool. For the purpose of this report, these data are intended to provide general profiles of participants and their potential to succeed in the project.

Attitudes Toward Technological Tools. As expected, participants indicated that some tools might be more useful than others. In general, respondents were familiar with common tools and less familiar with specialized, subject-specific tools. However, while participants varied in their appreciation of the common tools, those who were familiar with specialized tools valued them more highly. For example, participants varied in their acceptance of concept mapping software as a useful tool but generally rated it as a useful or very useful tool (46.5%). By contrast, there were relatively few participants who were unfamiliar with the category or felt that it was not relevant to their teaching (12.7%). Alternatively, proportionally more participants (30.2%) were unaware of probeware and the associated data collection tools. However, those who reported some knowledge of probeware also indicated that it was a useful or very useful tool (37.3%). This trend was evident in ratings associated with common instant messaging tools and Web 2.0 tools like blogs and wikis as they compared to more specialized tools like Interactive simulations and Website creation software.

Dispositions Toward Teaching with Technology. In general, this group of participants reported a high opinion of the role of technology in the classroom. The average rating on a 5-point Likert-type scale was above four in every case with the exception of item seven: Technology should be central to instruction, which was rated a 3.82 on average. From these data, we infer that all participants valued

the use of technology but would have asserted that content is principal in instruction. Items in the TPACK instrument (below) address how content, pedagogy, and technology may be intertwined.

Technology Self-Efficacy (Confidence). Similar to their awareness of tools as reported in the Attitudes section, participants reported high self-efficacy ratings associated with easy skills (e.g., email, grades, search, etc.) but low self-efficacy with respect to more complex skills (e.g., video chat, web page creation, etc.). This suggests that the population had a solid foundation to begin a professional development program that was mediated by advanced technologies. While participants reported valuable skills, there are many areas in which they were not skilled and had room to develop.

TPACK (Technological Pedagogical Content Knowledge). Common across the TPACK items was participants' high rating of their strengths associated with their content areas. In general, participants believe that they know their content areas (M = 4.5), can engage in a way of thinking aligned with their content area (M = 4.4), and provide meaningful instruction associated with that content area (M = 4.5). At pretest, ratings indicated that technological knowledge, integration of technology, pedagogy, and content were areas in which participants might improve. While they have reported high levels of skill in their content area, data analysis suggests that they also had room to grow.

Overall Profile of Pathway Participants. From these data, we conclude that the teacher participants in the Pathway project represented an appropriate cross section of trainees. Participants were experienced teachers (at least three years) and confident in both their ability to apply basic tools and to teach in their content areas. We assert that this group, at a minimum, had the requisite skills to engage with the Pathway professional development. Further, we assert that this group had the potential for improvement to allow for an appropriate evaluation of the Pathway modules and training materials as specified in the grant intent. Lastly, the majority of participants were recruited early. Analysis of participants' goals suggests that they are commensurate with the characteristics required of successful online professional development and learning. Ultimately, the group of individuals appeared to be well suited to interact with the professional development materials in a meaningful way and provide important feedback for the future improvement and delivery of instruction.

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iii. Data Screening and Analysis

Data were examined for normality and visually scanned for outliers. No immediate issues were detected. However, there were at least 15 and as many as 31 items per scale and comparatively few participants (i.e., approximately 127). To increase the parsimony of the model and improve the predictability of the analyses, a principal components analysis was applied to the data to reduce the number of variables (Stephens, 1996). This technique also revealed patterns in participant responses. Specifically, items from each scale were compared in terms of how they relate to one another. These patterns were examined and named based on the themes they appeared to reflect.

The principal components analysis of the *Attitudes Toward Technology Tools* scale revealed four stable components that were named *interactive tools, production tools, delivery tools*, and *specialized tools* based on the nature of how the tools are used. Analysis of the *Dispositions Toward Teaching with Technology* scale revealed two stable components that were named*: student centric uses* and *teacher guided uses* based on what type of pedagogical activities are involved. Analysis of the *Self-Efficacy* survey revealed two stable components that were named: *frequent daily tasks* and *pedagogical tasks* based on how confident participants were in these areas. Analysis of the *TPACK* survey revealed six components that were named: *technological knowledge*, *pedagogical knowledge, technological pedagogical knowledge, TPACK, content knowledge*, and models of TPACK. These factors aligned with the structure from Schmidt et al. (2009). See Table 5 for items, components, and a brief description of the nature of those components.

Table 5: Component Variables and Items

Attitudes Toward Technology Tools Scale	*Items*	*Variance Explained*
Production Tools: Items that pertained to tools used to create resources.	10, 11, 12, 13	18.18%
Delivery Tools: Items referred to technology typically used to deliver information (e.g., the WWW, presentation software, etc.).	1, 2, 5*, 9	15.37%
Interactive Tools: Items pertained to dynamic tools that are often used because they provide feedback (e.g., games, concept maps, etc.).	4, 5*, 6, 14, 15	15.56%
Specialized Tools: Items dealt with technology that often requires more training or is developed for specialized uses (e.g., modeling tools, simulations, etc.).	3, 7, 8	11.13%
	Total	*60.24%*
Dispositions Toward Teaching with Technology Scale	*Items*	*Variance Explained*
Student Centric Uses: Items related to technology used by students (e.g., homework, learning, etc.).	1, 2, 3, 4, 5	33.82%
Teacher Guided Uses: Items that pertain to technology used by the teacher for instructional purposes (e.g., record keeping, building assignments, etc.).	6, 7, 8, 10, 11, 12, 13, 14, 15	24.64%
	Total	*58.46%*
Self-Efficacy Scale	*Items*	*Variance Explained*
Frequent Daily Tasks: Items pertained to tasks done regularly as part of daily teaching activities (e.g., sending email, entering grades, etc.).	1, 2, 3, 5	35.35%
Pedagogical Tasks: Items related to the tasks that involved more pedagogical thought (e.g., start a video chat, build a web page, etc.).	4, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15	24.64%
	Total	*59.98%*
TPACK Scale	*Items*	*Variance Explained*
Technological Knowledge: Items pertained directly to participants' knowledge of technology.	1, 2, 3, 4, 5, 6, 7	17.37%
Pedagogical Knowledge: Items pertained to participants' knowledge of pedagogy.	11, 12, 13, 14, 15, 16, 17, 18	14.26%
TPACK: Items pertained to TPACK in general.	19, 20, 24, 25, 27, 28	13.95%
Models of TPACK: Items pertained to the manner in which participants see their instructors modeling TPACK practices.	26, 29, 30, 31	9.27%
Content Knowledge: Items pertained to participants' content area.	8, 9, 10	9.06%
Technological Pedagogical Knowledge: Items pertained to participants' knowledge of using technology to teach in their content area.	21, 22, 23	8.51%
	Total	*73.41%*

* Denotes complex loading item.

iv. Objective 1: Change Teacher Behavior

To address objective 1, components from the factor analysis were examined for growth among five time periods: baseline and the end of each Module (four total). Subsequently, a Repeated Measures Analysis of Variance (RMANOVA) was applied to the 48 sets of complete data using the component variables to determine key areas of change. Wilks' Λ is a likelihood ratio test for multivariate analyses and was used to examine the significance of the RMANOVA. For the project overall, results indicated that there were significant main effects with respect to all but two variables (attitudes toward *delivery tools* and self-efficacy associated with *frequent daily tasks*). Subsequent analyses indicated that participants' ratings in each area grew over time. Further, the estimate of effect (partial η^2) for each significant change is considered to be meaningful. Specifically, Cohen (1988) added that significant results should be contextualized. As such, effect size is used as indicator of the social importance of any significant quantitative test. Cohen described $\eta^2 = .01$ as small, $\eta^2 = .06$ as medium, and $\eta^2 = .14$ as large. The tests in this analysis all exceeded the .14 range in their estimate of effect, suggesting that the results are meaningful.

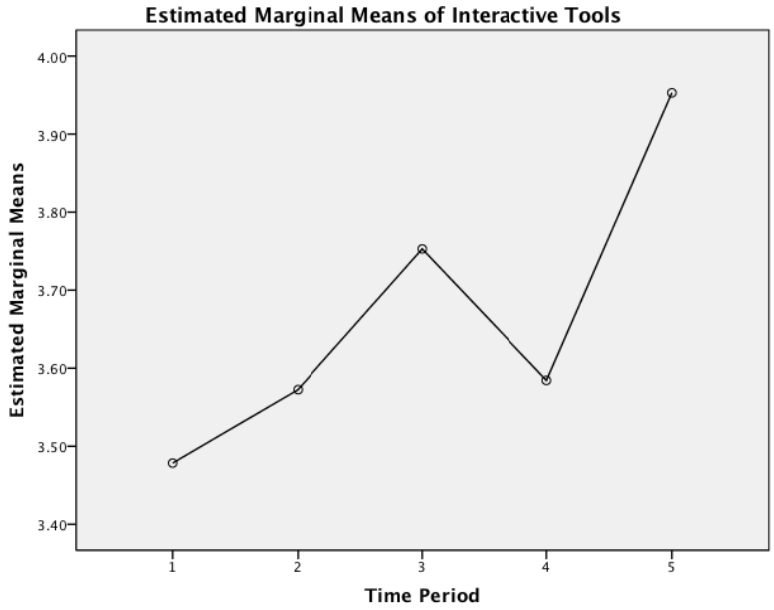
Although results from the project indicated that the participants reported overall gains, more discreet analysis of the modules revealed that each excelled in few distinct areas. For example, participants did not report a significant increase in any of their scores associated with the TPACK scale during Module 3. However, there was a significant and consistent increase in each of these areas for the project overall. This occurs for other variables during several modules. For example, there was no significant change in participants' dispositions during Modules 1 or 3. However, there was a significant increase over the course of the project. This result may be explained by the variety in content, timeframes, and other characteristics associated with each Module. Regardless, the combined influence of each module appears to have resulted in significant gains in key areas associated with project goals. Additional information about each scale is provided below and tables 4-7 report the significance levels, relevant statistics for each set of variables, and noteworthy differences across time periods for the project as a whole.

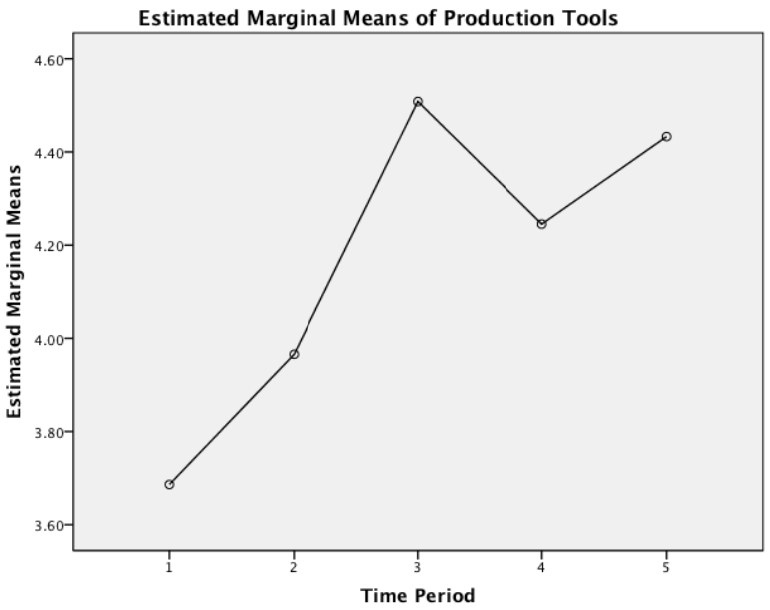
Data from the qualitative prompts, interviews, and observations confirms that this objective was met. In particular, participants' comments often reflected higher attitudes, confidence, and self-efficacy associated with Pathway tools and pedagogies. Further, teachers reported viewing instruction and their students in a different light. Teachers also noted higher levels of on task behavior, task completion, and general motivation in their classrooms. Much of this was confirmed during classroom visits, in which high levels of engagement were noted.

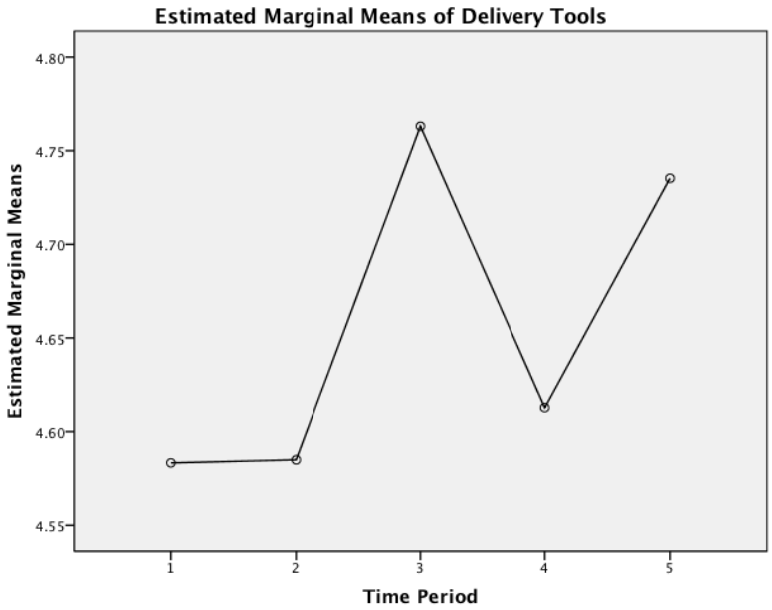
Using multiple methods, the data strongly suggest that Objective 1: Change in teacher behavior, was met. The details are outlined below.

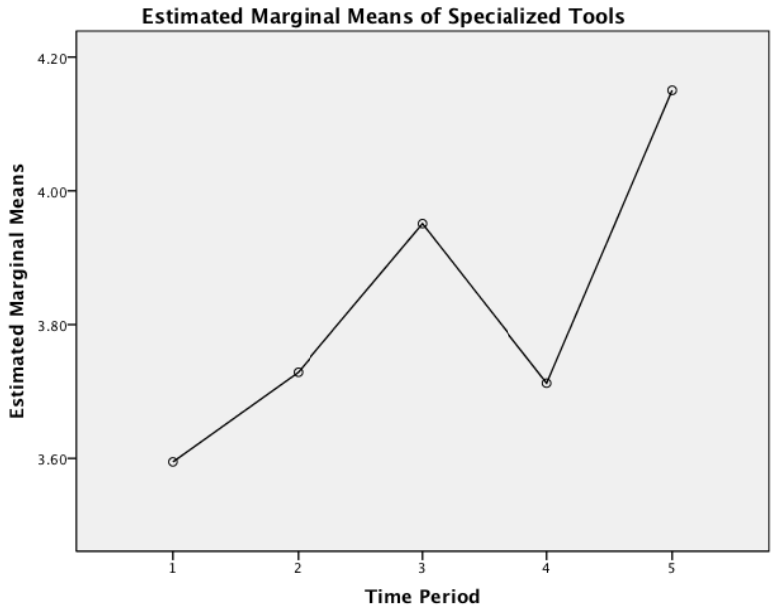
Noteworthy Differences Across Time Periods: Attitudes toward Technological Tools

Two variables revealed interesting trends when one compares the results over time with the results from individual modules. In particular, the variable *delivery tools* represented technology used to present information (e.g., the WWW on a projector or presentation software) and the variable *interactive tools* represented technology that involves dynamic environments and requires that the students interface with technology (e.g., games or concept maps). In the case of *delivery tools,* teachers tend to adopt these tools in their practice early because they tend to be less involved and integrate more easily into their practices. By contrast, *interactive tools* are more complicated, require more advanced pedagogies, and tend to be more difficult to integrate into existing paradigms. For each variable, there was little change on the part of each module. However, the project had a positive change on participants' attitudes toward *interactive tools* upon the conclusion of the project. By contrast, their views toward *delivery tools* remained unchanged. The figures below highlight some of the changes over time. Ultimately, changes occur in areas that were central to project goals (i.e., interactivity and production).





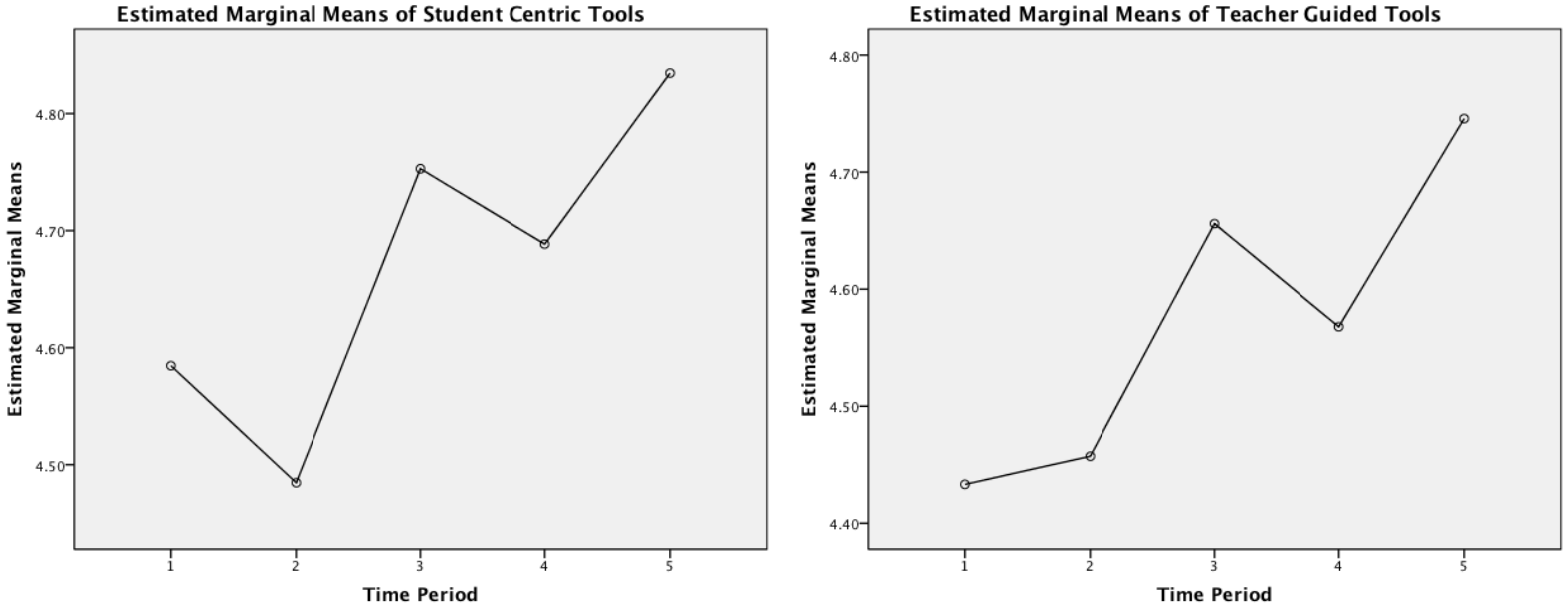




Figures 5, 6, 7, and 8. Attitude ratings over time.

Noteworthy Differences Across Time Periods: Dispositions toward Teaching with Technology

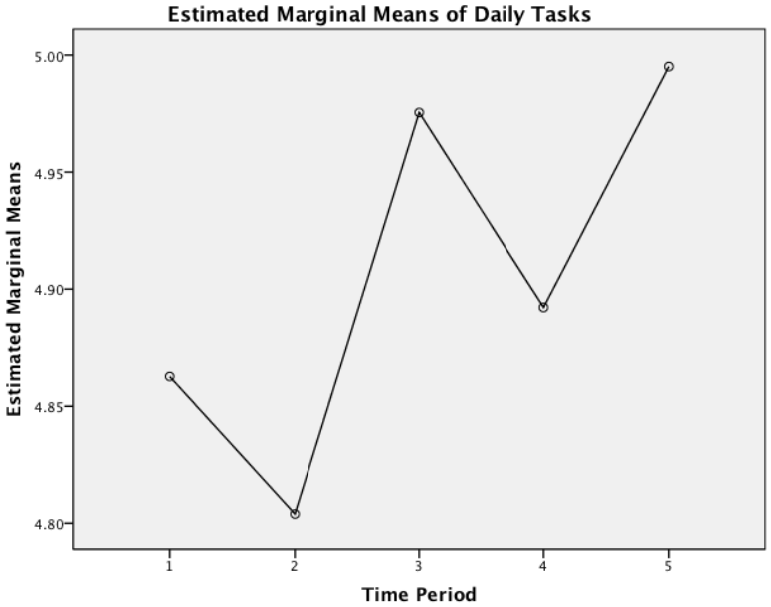
Both variables associated with participants' dispositions toward *student centric* tools (e.g., tools used by students to complete homework, assignments, etc.) and *teacher guided uses* of technology (e.g., tools used by the teacher for a variety or purposes like record keeping or lecturing) fluctuated over the course of the Pathway Project. Each variable declined during Modules 1 and 3. However, each variable increased during Modules 2 and 4. Further, there were overall gains throughout the entirety of the project. These differences may have been the result of a strong foundation for change that began in Module 1 and extended throughout the rest of the project, choices made about content, altering focus of projects, modifications to the structure of the professional development and a variety of other subtle differences among Modules. Ultimately, each module reflected a unique character and focus, from content to practice. Although the individual results appear to fluctuate, the overall trends are positive and statistically significant.

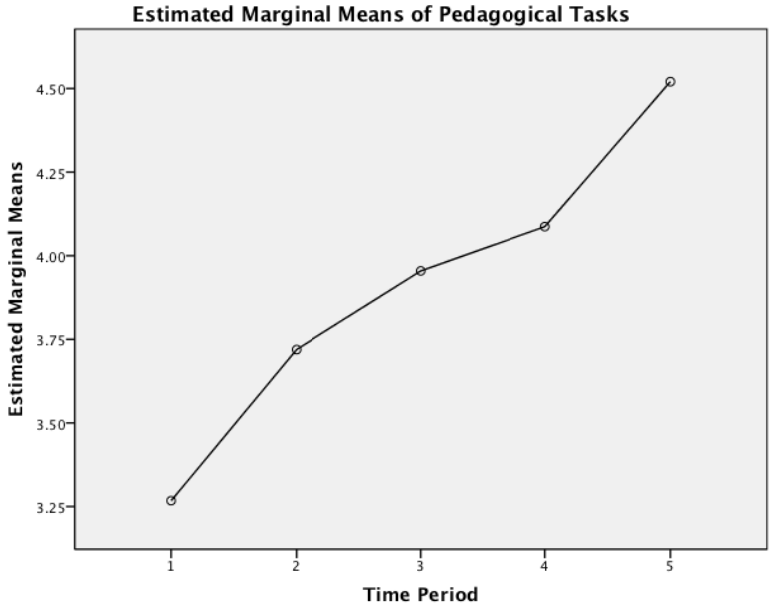


Figures 9 and 10. Disposition toward technology tools over time.

Noteworthy Differences Across Time Periods: Self-Efficacy

With respect to participants' self-efficacy ratings, Pathway content addressed *pedagogical task*s directly (e.g., building a web page). Much of the content focused on addressing the manner in which technology could be integrated into curricula. As is evident in the second figure below, participant's ratings increased steadily over time. These increases were also statistically significant. As is often the case while working with technology, participants were asked to use technology regularly. This may have resulted in gains, albeit unreliable, in areas tangential to project goals. Specifically, participants reported increases in their self-efficacy associated with *frequent daily task*s (e.g., sending email, entering grades). However, these were not statistically significant.



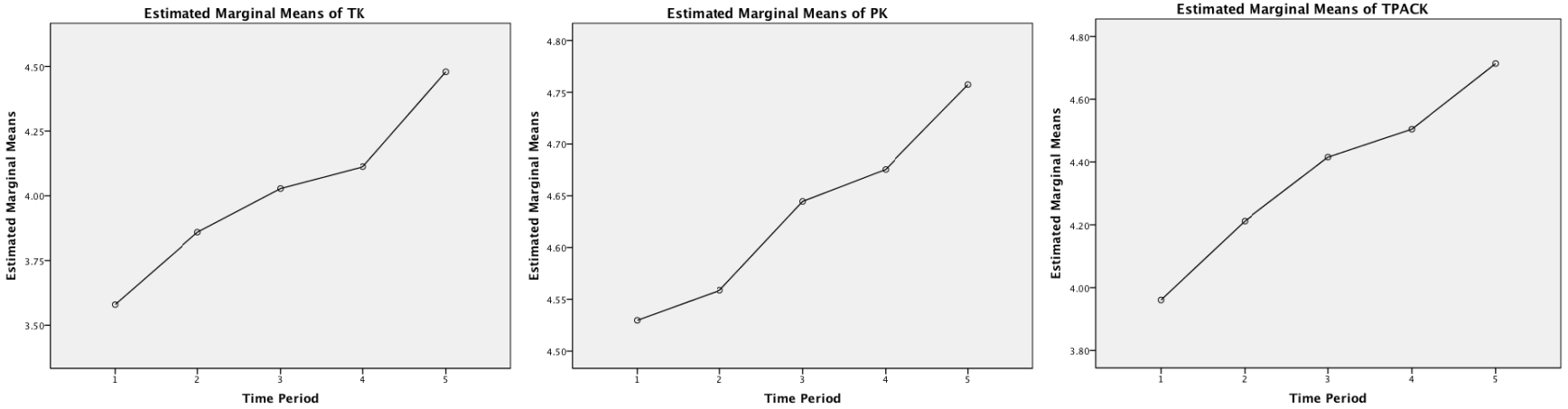


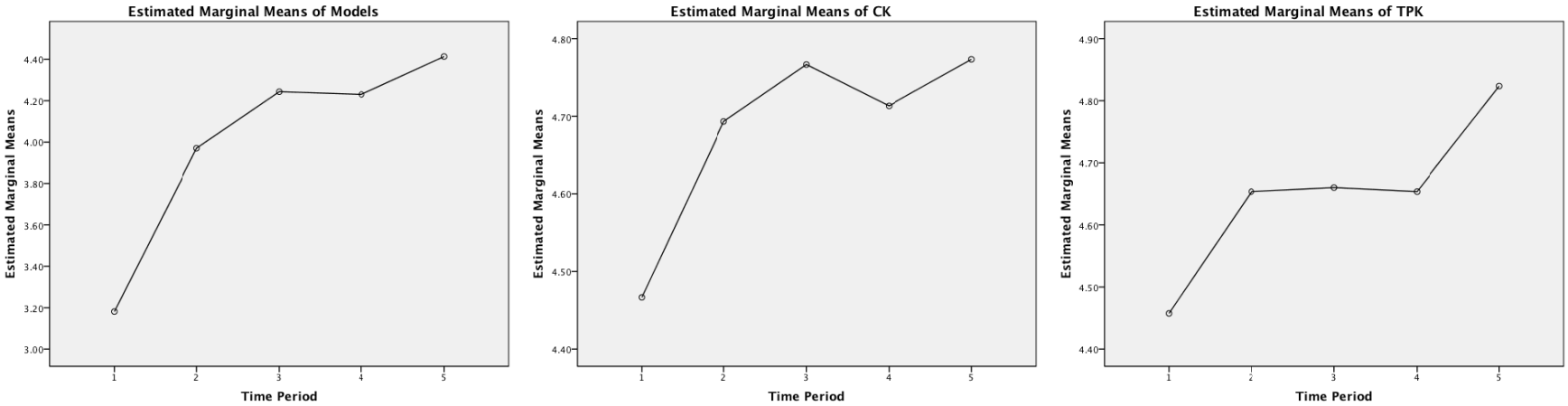
Figures 11 and 12. Self-efficacy ratings over time.

Noteworthy Differences Across Time Periods: TPACK

The TPACK scale was reduced to six component variables, all of which exhibited significant increases throughout the project. Discrete analysis of each variable over time indicates that there were several plateaus in the ratings. In particular, the *models* variable, which reflects an understanding of the TPACK construct, did not appreciate at the same rate as the other variables. This may be due to a ceiling effect and the fact that participants were introduced to models of TPACK early in the professional development. A similar plateau is evident in the *content knowledge* variable. Although it is understandable that participants' attention and memory of content might be cued as a result of the professional development, *content knowledge* of their disciplines and domains was not the focus of the project. A plateau is understandable in this case. Lastly, the variable associated with *technological and pedagogical knowledge* exhibited a plateau during Modules 2 and 3. Although participants' ratings were high, they were almost completely stagnant during this phase of the project. However, when asked to reflect on their experiences and draw connections across the project activities, there was another significant increase in their ratings. With respect to the remaining variables, the increase in ratings was consistent and statistically significant over the duration of the project. Although several of the variables did not reflect a significant change for one or more modules, there was growth in the ratings.

In general, the TPACK framework is complex, involving distinct aspects of knowledge as well as an understanding of how content, pedagogy, and technology interact in practice. It is not surprising that individual modules were limited in their impact on participants' ratings associated with TPACK. However, it is generally encouraging that the ratings increased steadily and significantly as a result of the project overall. This supports the project's positive impact on participants. More importantly, the lack of discrete changes is offset by generally positive and statistically significant changes overall. This suggests that no individual module could or should be delivered in isolation. Rather, the project must be evaluated as a whole.





Figures 13-18. TPACK scale ratings over time.

Table 6: Attitude Scale Outcomes

Variable Name		Module 1: Building Knowledge and Skills	Module 2: Setting Goals and Project Planning	Module 3: 21st Century Skills in Action	Module 4: Reflecting for Change	Year 1 Change	Overall Change
Production Tools	Wilks' Λ	.913	.590	.939		.590	.503
	F value	F (1, 114) = 10.821	F (2, 82) = 28.534	F (1, 64) = 4.149	Not significant	F (2, 82) = 28.534	F (4, 47) = 11.627
	Significance (p)	.001	< .001	.046		< .001	< .001
	partial η^2	.087	.410	.061		.410	.497
Delivery Tools	Wilks' Λ		.853			.853	
	F value		F (2, 82) = 7.056			F (2, 82) = 7.056	
	Significance (p)	Not significant	.001	Not significant	Not significant	.001	Not significant
	partial η^2		.147			.147	
Interactive Tools	Wilks' Λ				.822		.690
	F value				F (1, 62) = 13.433		F (4, 47) = 5.273
	Significance (p)	Not significant	Not significant	Not significant	.001	Not significant	.001
	partial η^2				.178		.310
Specialized Tools	Wilks' Λ	.952	.821		.769	.821	.622
	F value	F (1, 114) = 5.720	F (2, 82) = 8.914		F (1, 62) = 18.663	F (2, 82) = 8.914	F (4, 47) = 7.154
	Significance (p)	.018	< .001	Not significant	< .001	< .001	< .001
	partial η^2	.048	.179		.231	.179	.378

Table 7: Disposition Scale Outcomes

Variable Name		Module 1: Building Knowledge and Skills	Module 2: Setting Goals and Project Planning	Module 3: 21st Century Skills in Action	Module 4: Reflecting for Change	Year 1 Change	Overall Change
Disposition toward Student Centric Uses	Wilks' Λ	Not significant	.870	Not significant	.917	.707	.691
	F value		F (1, 85) = 12.700		F (1, 62) = 5.583	F (2, 84) = 17.415	F (1, 48) = 5.356
	Significance (p)		.001		.021	< .001	.001
	partial η^2		.130		.083	.293	.309
Disposition toward Teacher Guided Uses	Wilks' Λ	Not significant	.923	Not significant	.940	.778	.689
	F value		F (1, 85) = 7.091		F (1, 62) = 3.985	F (2,84) = 11.985	F (1, 48) = 5.415
	Significance (p)		.009		.050	< .001	.001
	partial η^2		.077		.060	.222	.311

Table 8: Self-Efficacy Scale Outcomes

Variable Name		Module 1: Building Knowledge and Skills	Module 2: Setting Goals and Project Planning	Module 3: 21st Century Skills in Action	Module 4: Reflecting for Change	Year 1 Change	Overall Change
Self-Efficacy Toward Frequent Daily Tasks	Wilks' Λ	Not significant	.954	Not significant	Not significant	Not significant	Not significant
	F value		F (1,85) = 4.071				
	Significance (p)		.047				
	partial η^2		.046				
Self-Efficacy Toward Pedagogical Tasks	Wilks' Λ	.872	.884	.931	.660	.584	.271
	F value	F (1,116) = 17.036	F (1,85) = 11.144	F (1, 63) = 4.647	F (1, 59) = 30.398	F (2,84) = 29.976	F (4, 47) = 31.548
	Significance (p)	< .001	.001	.035	< .001	< .001	< .001
	partial η^2	.128	.116	.069	.340	.416	.729

Table 9: TPACK Scale Outcomes

Variable Name		Module 1: Building Knowledge and Skills	Module 2: Setting Goals and Project Planning	Module 3: 21st Century Skills in Action	Module 4: Reflecting for Change	Year 1 Change	Overall Change
Technological Knowledge	Wilks' Λ	.865	.855		.813	.592	.226
	F value	F (1,115) = 17.970	F (1,85) = 14.399	Not significant	F (1, 61) = 14.028	F (2,84) = 28.943	F (4, 47) = 40.173
	Significance (p)	< .001	< .001		< .001	< .001	< .001
	partial η^2	.135	.145		.187	.408	.774
Pedagogical Knowledge	Wilks' Λ		.949			.855	.776
	F value		F (1,85) = 4.605			F (2,84) = 7.115	F (4, 47) = 3.999
	Significance (p)	Not significant	.035	Not significant	Not significant	.001	.007
	partial η^2		.051			.145	.254
TPACK	Wilks' Λ		.918		.880	.692	.407
	F value		F (1,85) = 7.588		F (1, 61) = 8.345	F (2,84) = 18.705	F (4, 47) = 17.131
	Significance (p)	Not significant	.007	Not significant	.005	.001	< .001
	partial η^2		.082		.120	.308	.593
Models of TPACK	Wilks' Λ	.749	.814		.922	.542	.451
	F value	F (1,114) = 38.230	F (1,85) = 19.400	Not significant	F (1, 61) = 5.138	F (2,84) = 35.531	F (4, 47) = 14.286
	Significance (p)	< .001	< .001		.027	< .001	< .001
	partial η^2	.251	.186		.078	.458	.549

Table 9: TPACK Scale Outcomes Continued

Variable Name		Module 1: Building Knowledge and Skills	Module 2: Setting Goals and Project Planning	Module 3: 21st Century Skills in Action	Module 4: Reflecting for Change	Year 1 Change	Overall Change
Content Knowledge	Wilks' Λ	.938				.868	.803
	F value	F (1,115) = 7.654	Not significant	Not significant	Not significant	F (2,83) = 6.303	F (4, 46) = 2.821
	Significance (p)	.007				.003	.036
	partial η^2	.062				.132	.197
Technological Pedagogical Knowledge	Wilks' Λ				.923	.805	.751
	F value	Not significant	Not significant	Not significant	F (1, 61) = 5.063	F (2,83) = 10.066	F (4, 47) = 3.889
	Significance (p)				.028	< .001	.008
	partial η^2				.077	.195	.249

Changes in Attitudes, Beliefs, and Practice: Qualitative Results

Qualitative data support the shifts in teachers' attitudes and beliefs indicated in the quantitative findings. As one teacher reflected in an interview: "It makes me think more about [how] our students today are different than students were even last year and the year before that and how much more they're changing and the tools that they need to use." Another added:

> *It's definitely changed the way that I view my students. It's also made me realize that even though I'm a younger teacher, I mean relatively, that I have a lot of learning or catch-up to do as far as being out of school for a while and needing to re-visit the technology and how it's changed in that short amount of time.*

Another teacher stated, "It has been very rewarding for me because it has given me opportunities to help me see things through a totally different lens."

Changes in attitudes and beliefs lay a foundation for changes in practice and many teachers reported transformative changes in this regard. One participant commented, "To be so knowledgeable about technology and be able to turn that into true education for them, it just opens their eyes in ways, I mean…it just makes the day so much more interesting for them and it makes it so much more interesting for myself." Another explained,

> *I haven't had to pull out the textbooks at all this year. It's not that I never use pencil, paper, obviously that still has a lot of value, but as much as I can, I try to get the technology used in whatever way that I can. It's a never-ending source of information and reading and writing and critical thinking skills and it's really all of that together. It's been a very pleasant experience having all this stuff in my classroom!*

Another teacher concluded about the project, "It gave me a huge boost. I think I would have finished my career just doing pretty much what I had been doing…."

Student Outcomes/Achievement: Motivation, 21st Century Skills, and Content-area Learning

Perhaps the most compelling student outcome, confirmed by classroom observations and teacher interviews, has been the level of student engagement attained. Findings show that students are indeed motivated by the various technology tools and applications employed. One teacher noted, "it's just easier because when you put that technology in their hands, they really are more engaged in the first place." Another observed, "I think that it's amazing to watch how much more work that they will do if I had them use an Touch to do research projects compared to let's go check out a book. The amount of engagement and just flat out finishing stuff is remarkable."

Another teacher illustrated aspects of student engagement and its impact on her class:

> *There are teachers when my kids are using iPods, even for research, when they walk in that are like, why are they so quiet? And they're totally on task, they're doing their work and they're engaged, and I've seen technology completely do that. And I've seen them with things that don't involve the iPods be engaged, but it does help for kids that are not normally engaged with anything else. They like using the technology!*

One teacher explained, "It's just one more thing that I get to use to keep my students motivated about learning this stuff that I'm, you know, trying to shove down their throat. Yeh, it really has increased their learning and it increased their attention span…they're more awake." Another added, "I think that the technology that I've had has impacted my kids and it sounds crazy but because I have a little bit of extra stuff, my kids are willing to go a little bit of an extra mile with me."

There was ample anecdotal evidence that increased engagement has had a positive impact on student achievement in content areas. One teacher noted, "Just the engagement factor, whenever you have something that's interactive online--I use a lot of simulations to show concepts, science concepts that make a huge difference too. So absolutely there is a significant difference in learning. Another added,

I can go much into a deeper level….And now all of a sudden their understanding of it is higher….They're mastering the DOK1 [Depth of Knowledge, Level 1} so much faster, but I can go the DOK2 and I can go the DOK3. So that's how the technology has completely helped, I can go much more in depth than I used to.

Specifically relating to students achievement levels, one teacher noted:

On student learning, I can tell you that there are students who will be getting F's in other courses. In my class they're not. They may still be getting D's; they may be getting C's. We're not talking rocket science/A's here, but they do nothing in other classes and I can give you…evidence that they are doing work and they're learning in English class.

Another teacher concluded about the potential for the future:

The possibility for them to learn more is there--yes--and that's where we are trying to lead them. The possibilities are so endless because the material is so good out there that we just have to get them in the right place and get them focused there and that's my job as a facilitator to get them there.

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v. Objective 2: Effective Strategies for Online Professional Development

Despite the great potential of technology to be a catalyst for transformative change in education, this ambitious goal has yet to be realized on a large scale (Cuban, 2001; Cuban, 2006). The literature is clear that among other factors, high quality teacher PD is critical, yet often lacking in educational reform efforts. While professional development programs vary widely in content and format, most seek to bring about change in the classroom practices of teachers, in their attitudes and beliefs, and in the learning outcomes of students (Guskey, 2002). *These were the goals of the Pathway Project.*

Quantitative results support the effectiveness of the online professional development to impact teacher change in attitudes, dispositions, self-efficacy, and TPACK. Qualitative analysis confirmed these findings and complements quantitative data with illustrative details of key issues involved. Qualitative data sources included observations and interviews with teachers and administrators, interviews with project facilitators, participant artifacts including their Measurable Achievement Plans (MAPs), forum discussions, and open responses from teacher surveys.

The post-module evaluations included open-ended items in which participants were asked to describe what they think is going well, what they would improve, and what they hope to learn before the end of Pathway. Following Module 4, participants were asked similar questions that addressed the entire project (i.e., things that went well with the entire Pathway Project, things that you would like to see improved with the entire project). Responses were examined for similarity and like responses were combined. From these data, it was possible to identify aspects of instruction that facilitated learning as well as suggestions for improving the project. Additionally, participants' e-portfolios, including their MAPs, provided further data addressing the effectiveness of the professional development.

Survey Prompt: What Went Well?

When asked about things that went well with the project, responses were grouped into two main areas: technology learning and growth, and characteristics of the professional development. A description of each follows.

Technology Learning and Growth. The greatest strengths of the project identified center around the degree of participants' learning through access to project technologies and professional development. Many noted their appreciation for their access to the laptops and iPods as well as the wealth of web-based applications and resources that were highlighted during the project. One teacher assessed, the "projector and laptops have moved my classroom into the 21st century!"

Many respondents confirmed that the professional development for integrating technology and promoting 21st Century skills progressed nicely over the course of the project. One explained, "I continually learned. I didn't stop learning after one module…." Another added, "I progressively learned more about how to use my iPods in class." Assessing the cumulative effects, a participant reflected on

her growth "from never letting students touch a computer to including technology in many of my lessons."

Specifically, following Module 4, many cited their use of Edmodo in their teaching to post assignments and communicate with students. One teacher noted, "Edmodo is a great tool for keeping in touch with what students know."

In addition, a large number of participants identified the creation of professional websites as an area that went particularly well. As one teacher noted,

> *I feel that creating a website was the best thing I learned….I have never been able to do this until now. I feel confident in teaching my students how to create websites to improve and show what they learn throughout the year.*

Another added, "It was great to create the website that we are using to SHOWCASE what we are doing in Pathway."

Many expressed pride in the accomplishment in creating the websites and gradually expanding their functionality. In addition to Google Sites, which participants used to create their websites, several Web 2.0 applications were cited including Google Documents and Forms. One respondent commented, "I have learned so much…using google docs and gmail and sooooo much more."

Many comments illustrated teachers' extended learning of new applications and tools and their growing self-confidence in using technology. As one stated, "I have a better idea of 21st century tools my students can use." Another noted that the project has teachers "reaching out beyond our comfort zone to learn new technologies." Finally, another characterized what many expressed: "I loved learning about all of the new sites available to me and my students."

Characteristics of the Professional Development: Organization, Differentiation and Collaboration. Several teachers commented on the organization of assignments with the emphasis on self-directed learning and classroom implementation. One teacher noted, "I'm thrilled that we've had time to implement our lessons," a reference to the time crunch that participants noted during the first module. Another appreciated "learning about new teaching practices in a loosely controlled environment (I love the freedom to explore!)." One respondent identified "the freedom to choose what we learn" as a strength. Others added, "I like having some choice in what we explored, so that we could do things that related to our curriculum" and have "the freedom to be in charge of my learning."

Many also stated that they increasingly applied learning from the project in their classrooms with students. Teachers noted that they were "integrating technology into lesson planning and design;" "incorporating technology more frequently;" "finding ways to use the iPod Touches in the classroom;" "getting students to be independent learners with the iPods;" and increasing "engagement by the students…when they [iPod Touches] are used."

Many teachers cited the collaboration that they experienced with peers as a major strength of the project. Participants noted that they were able to share successes and difficulties and get new ideas through their online collaboration. Teachers valued the collaboration with both "on-site colleagues along with middle school teachers statewide." Another assessed that the collaboration with Pathway teachers resulted in a "fantastic pool of information."

Participants consistently acknowledged the contributions of the project facilitators in making the PD work. A number of people praised the "great communication between Sara, Terra, and the group." They cited receiving knowledgeable and timely feedback from the facilitators, who were characterized as flexible and understanding.

Several noted the helpful "push" they received from project expectations that forced them out of their comfort zones. As one teacher explained, "The project 'forced' me to create a class website that has turned out to be a major tool in my classroom." Others noted being pushed to "implement the new technology on a regular basis" and "pushing myself to be a better teacher."

Prompt: Suggestions for Improvement?

When asked for "*3 things you would improve*," teachers' responses were grouped into three main areas: assignments and organization, the Collaborative Nevada Project, and technology-related issues. A description of each follows.

Assignments and Organization. Many respondents cited concerns about the projects' expected workload and the clarity of assignments, particularly during Module 1. As one teacher noted, "The first Module could be pared down a bit. I realize that the information is necessary, but it was extremely overwhelming." Another stated that overall, the "time commitment must be revisited and acknowledged that it is much greater [than the projected number of hours]." Another teacher added: "I am not afraid to work hard, but I feel you guys were clueless on timelines and how labor intensive using technology is." One likely explanation for the amount of time spent on the assignments is the wide range of technology expertise of the Pathway participants as well as the amount of time they had available for completing their work.

Others commented on the breadth of topics that were addressed. One articulated what many have expressed in the project evaluation surveys: "I think we went through everything so fast, that I didn't get a clear understanding of how to use everything in my classroom." Another teacher confirmed the need for "more time to create lesson plans and implement these lesson plans in class." Others suggested that the "complexity of what needs to be done be lessened" and that there be "more focus on one area instead of many things." Some noted "mental overload" and suggested that there not be so much "piled on at once." One teacher explained, "I would like a slower process for the implementation of projects with students." Another teacher requested "increased time to work with technology for those of us who are slower learners." While efforts were made beginning in Module 2 to differentiate assignments and give teachers more latitude in how they spent their time, for some, these concerns persisted throughout the project.

Other aspects of the assignments were mentioned with suggested improvements. Some asked for "clearly listed due dates on one page" and clear expectations and procedures for submitting them one place. As one teacher noted, "I would like to see better communication on projects as I felt sometimes the assignments were not always clear." Another added, "I would like to just submit assignments to one place. I felt like we had to cut and paste into many places."

Some participants commented on the organization of the modules and the Moodle project site. As one noted, "The first module was a bit unorganized, but by the second it was much smoother." Others raised issues with the changing themes of each module. Some would have preferred a greater load in the summer and a decreased load during the school year. Others requested more work in content area groups. As one noted, "It would be great to be part of a small math group, that was required to share ideas," perhaps in Edmodo.

In addition, several people expressed appreciation for the opportunity to attend the 21st Century Instructional Technology Conference and would prefer more face-to-face meetings. As one teacher noted, "I would like to have another chance to gather with the other NPP participants! It was really nice to put faces with names at the Tech Conference." Another added, "I would have liked more f2f interaction with other Project members. Some of them have SO MUCH to teach me, and I think I sometimes learn better with people than through my own exploration." Another advocated "regional meetings to communicate with instructors and peers."

Overall, in reviewing the suggestions across the four modules, it appears that many of these concerns were addressed following Module 1. An additional round of suggestions, however, appears to have emerged in part due to the Collaborative Nevada Project (CNP), which is addressed in the following section.

Collaborative Nevada Project. The Collaborative Nevada Project (CPN) was the source of significant concern for a large number of respondents. During the planning stages in Module 3, several expressed that elements of the project should be clarified. Others were concerned about the group process and relying on group members to complete the project. Several cited the need for "improved collaboration skills by some of the teacher participants." Another commented, "I wish I could have chosen my groupmates."

Many teachers also expressed concern about the fit of the CNP for their curriculum and suggested that the project should include collaboration with school-based partners or be limited to one or two content areas across sites. For example, one teacher noted:

> *Instead of an IDU [inter-disciplinary unit] with other outside teachers, I would prefer a unit with my teaching partner at my school. The project we are working on as a group will not help my students. I am trying to achieve grade level at the moment. Working with my partner teaching in the project would be productive for us as teachers as well as for our students.*

One participant assessed, "I believe that the wide scope of the project scared people away and created problems between participants." Another added:

> *The CNP project was very time consuming and stressful. Two group members dropped and we got a very late start. The topic did not fit into my Life Science Standards. I had to take time away from teaching standards that I have not had time yet to teach and the year is almost over.*

Many others weighed in with critical comments: "Collaboration is difficult in the best of circumstances, and working toward an unclear goal with people who I had never met was the worst of circumstances." Another added, "There has to be more accountability on the individuals participating in each group. Some have done virtually nothing to communicate." One suggested to begin "smaller at the start with collaboration projects so it is not as overwhelming at the end." Finally, once concluded in no uncertain terms: "DROP the CNP PROJECT….WHY, WHY, WHY???? WAS SO MUCH ENERGY EXERTED ON THIS!!!!!"

*Technology Issue*s. Suggestions for project improvement also included more administrative support for technology and better cooperation between local IT personnel to support Pathway implementation, including unblocking filters for Pathway recommended sites. Some suggested that more laptops would have been helpful. Apparently the number allocated as a classroom set to share between two teachers varied in some sites. As one teacher stated, "More laptops for each teacher - 20 to share isn't enough." Another added, "At our school, our laptops are barely enough for half a class. This is a problem for planning and implementing because everything takes twice as long."

Others wanted more ideas and more training on the iPods. At the end of the project, several suggested that iPads would ideal.

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vi. Next Steps for Future Learning/Additional Comments

In another prompt, participants were asked to *list 3 things that they hoped to learn before the end of Pathway*. The most frequently cited response following both Modules 2 and 3 pertained to more learning with the iPods and how they can be effectively used in the classroom. Other learning goals included more general goals about "how to integrate technology seamlessly" into teaching—"How to effectively use all of the technology I have. Not to just get by on the basics." Respondents wanted to learn "how to be a truly effective teacher who integrates technology in the best ways possible" and "how to incorporate technology even more efficiently than now." Several respondents mentioned wanting to learn "how to implement collaborative learning for students using technology" and how to plan and implement "a collaborative unit solely online." Specific technologies cited for further learning included more work with video, podcasting, Edmodo, blogging, and website design.

During interviews towards the end of Module 4, teachers described their next steps with the technology integration following the Pathway project. A majority of responses involved some level of reviewing all of the work that they've done over the two years and refining and extending their approaches for the coming year. Teachers mentioned doing more work with Edmodo, blogging/journaling, their websites, Skype, collaborative activities with Google Docs. One teacher characterized what many alluded to in their comments: So I really want to go back and look at the things that I didn't get to…because there were so many good resources, so much that it's way more than two years worth." Others mentioned "just continuing the programs we've developed," "deciding what fits best with what," "finding even more apps for the iPods," and "continuing what I've started."

Several respondents alluded to taking on further leadership in sharing their learning with their colleagues. A building administrator observed,

I think that one of the unintended bonuses of the project is I think it's fostered some leadership intentional in those two teachers because they were great teachers before, but they weren't necessarily sharing that knowledge and being leaders within the district. I think the Pathway project is giving them an avenue to do that, which I love. Being a leader myself, I think it's your job to foster that leadership intention in others, so I'm very happy to see that it's done that.

A teacher stated, "I'm just trying to any time that I can do things with other teachers." Another added, "I hope to take what I'm learning to my staff so they…can integrate for their students…."

The open-ended questions on the final questionnaire concluded with an opportunity for participants to add any additional comments that they wanted to share about their overall experience in the Pathway Project. As was the case after each of the modules, positive comments largely outweighed negative ones, with only six of 48 comments that could be construed as negative. One teacher assessed, I was overwhelmed and lost most of the time. I need things to be clear and precise. Another lamented, "I wish I could have incorporated the IPods better in my classroom. I felt I was hindered by the pacing guide and all the standards I was expected to teach and I just couldn't find apps that fit a lot of my lessons."

Otherwise, the comments were effusive with praise for the facilitators and the project. As one teacher wrote, "Terra and Sara are amazing! I can't thank them enough for this amazing opportunity and for all the hard work they did to promote our learning and teaching with technology." Another stated, "Thanks so much for encouraging and educating me during this project! You all are the best!"

Others expressed that the project had a profound influence on them as teachers:

I was very proud to be part of this experience! I really do feel like this is the final frontier…our educational system will advance with technology and a lot of people from the NPP will be there to lead the way. (especially with the cut backs on ECS's :(

This overall has been a life changing experience. Although it was a lot of work, I got a lot out of it, and my students are engaged and love my classroom because of the technology. The directors Sara and Terra were awesome! They were very supportive, and gave us quick feedback. It would have been very frustrating if we hadn't had them to guide us.

Another stated, "The Pathway Project has changed the way I teach. I cannot imagine going back to a time without this technology. I have seen definite benefits through my students' projects, assessments and discussion." Finally, one teacher concluded, "I won't waste time with too many words… quite simply, I am a different teacher because of participating in the Pathways project. Thank you so much for this great gift."

Measurable Achievement Plans (MAPs)

The MAPs were developed during Module 2 and implemented during Modules 3 and 4. A listing of MAPs submitted included URLS for 116 websites during Module 3. By the conclusion of Module 4, 89 participants submitted their completed MAPs. A breakdown of the posted MAPs by subject area appears in Table 10.

Table 10: Measurable Achievement Plans by Subject Areas

Content Area	Number Module 3	Number Module 4
English Language Arts (ELA)	34	26
Mathematics	28	20
Science	29	23
Social Studies	24	20
Social Studies/ELA	1	0
Total	**116**	**89**

Participants were asked to identify a key standard to be addressed in their MAPs using a synthesis of two frameworks introduced during the project: the National Educational Technology Standards (NETS) and the Partnership for 21st Century Skills. Table 11 shows a breakdown of the standards or areas addressed.

Table 11: Measurable Achievement Plan Breakdown by NETS/P21 Standards

NETS and P21 Standards Addressed	Number Module 3	Number Module 4
Critical Thinking, Problem Solving, and Decision Making	29	19
Communication and Collaboration	24	19
Creativity and Innovation	22	19
Research and Information Fluency/Information Literacy	17	11
Technology Operations and Concepts/ICT Literacy	11	7
Digital Citizenship/Media Literacy	7	8
Life and Career Skills	6	2
Total	**116**	**85***

*One participant did not provide a URL and three others did not allow permission to view.

Of the 85 MAPs reviewed following Module 4, only 34 (40%) included quantitative results posted in the MAP reports, while 51 (60%) did not. Based on the results posted, MAPs were analyzed for the degree to which their goals were met, each categorized as fully met, partially met, not met, or insufficient information provided (i.e., goals were not addressed in posted MAP report). Table 12 provides a breakdown of Measurable Achievement Plan outcomes. Due to the lack of consistent parameters for reporting MAP results, further systematic analysis of student outcomes across the MAPs was not conducted.

Table 12: Measurable Achievement Plans Outcomes

Goal Status	Number	%
Goals Met	39	45.9
Goals Partially Met	22	25.9
Goals Not Met	3	3.5
Goals Not Addressed	21	24.7
Total	**85**	**100.0**

7. Discussion and Challenges

A large-scale study of US federally funded Eisenhower projects (Garet, Porter, Desimone, Birman & Yoon, 2001) identified five key factors associated with successful professional development (PD):

1) Duration (longer is better);
2) Collective participation of groups of teachers from the same school, department, or grade;
3) Active learning opportunities;
4) Content focus;
5) Coherence, the degree to which the activity is tied to school goals, policies, standards, etc.

According to the evaluation data reported here, the Pathway Project would be considered quite strong in four of the five areas. The project was implemented over a two-year period (duration) with at least two teachers per school, virtually all at the middle school level (collective participation). It involved numerous professional learning activities, many with a content focus. Coherence, the degree to which the activities pertained to school goals, varied among the participating schools and could be considered a possible shortcoming of the project. In some cases the Pathway PD aligned well with school goals, in other cases Pathway teachers were pursuing goals that were not directly connected with those of their school programs.

With budget cuts for PD and the challenges of providing long-term, sustained efforts, the model for online PD employed in the Pathway Project has great potential to meet the above criteria in cost-effective ways. A particularly promising affordance of online PD is the potential to sustain a professional learning community or community of practice. Participants in a community of practice learn from each other by addressing problems directly related to their work in which they share experience and expertise (Wenger & Snyder, 2000). Pertaining to technology-rich environments, teachers need opportunities to learn what instruction and assessment practices, curricular resources, and classroom management skills work best (Holcomb, 2009).

Based on its well-conceived design and effective implementation, the Pathway Project was successful in addressing its two stated objectives. Quantitative and qualitative data gathered throughout the project supported its effectiveness to significantly impact teacher change in attitudes, dispositions, self-efficacy, and TPACK. Module 1 introduced a wide range of core content central to goals of the Pathway Project and Module 2 reinforced and extended the learning initiated in Module 1 while also allowing the participants to "recharge their batteries." In the second year of the project, Modules 3 and 4 provided extended opportunities for participants to pursue content of interest, apply their learning within their classes, evaluate student learning with their MAPs, expand their websites, and implement a collaborative interdisciplinary project with other Pathway teachers and students.

Further, findings supported the effectiveness of Pathway's strategies for online professional development—the second major objective of the project. Strengths identified include the technology-related learning that participants have undergone, the access to technology tools that pertain to the professional development, the collaboration fostered by the project, the opportunities for asynchronous, self-directed learning, the improved organization of the Moodle site, and the knowledgeable and timely feedback provided by facilitators.

In terms of the organization and the facilitators' instructional approach, facilitators solicited feedback from participants during Module 1. These results indicated that alternate approaches were warranted, which was confirmed by subsequent analyses. Findings from Module 2 and beyond validate the changes indicating the modifications were well received by both project facilitators and participants.

While Module 1 was highly structured and contained large amounts of content, Modules 2 - 4 employed a greater degree of differentiated instruction and participant self-assessment. Teachers pursued individual interests in and demonstrated evidence of their learning through their portfolio, MAPs, and presentations to their staffs, among other activities.

Discussion forums were available for questions about the assignments and participants were encouraged to ask questions and help each other as well as provide constructive feedback on each other's web pages. Participation in the discussions, however, was optional other than the forum for

planning the CNP. Still, without the requirements of Module 1, participants did continue to function as members of an ongoing community of practice.

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i. Challenges

Despite the positive outcomes, however, data gathered indicate several challenges as they relate to the project goals. The project served a diverse population in terms of content areas, interests, skills, and geographic locations and it is not surprising that, with a group as varied and as large as this, multiple challenges would arise. These challenges and their implications for future iterations of pathway were identified and are discussed below.

Equipment. Given the timing associated with the release of funding and the official start date of Module 1, not all districts were able to secure their equipment in time to begin the project. Even though some participants did not have their iPod touches, they still proceeded with the professional development. Unfortunately, this made participation and management more challenging until everyone had equal access to their tools. Although little could be done in this case, the time it takes to allocate funds and place/receive technology orders will continue to be a challenge and should always be considered.

Facilitation. Several results focus on the praise for the facilitators throughout the project. Facilitators were extremely involved, quick to respond, and provided knowledgeable guidance to participants. This degree and nature of facilitation became integral to the Pathway experience. Without facilitators of similar ilk and capabilities, it is unlikely that future iterations of Pathway will achieve the same learning gains. It will therefore be necessary, and potentially a challenge, to identify facilitators who are able to maintain comparable quality while managing the professional development's complexities.

Participant Time Demands. Module 1 was marked by extensive demands on participants' time. By contrast, adjustments made to Module 2 were well received, as was the approach to differentiate instruction in subsequent modules. However, there will likely need to be a balance between high expectations and what is appropriate for participants in online professional development. As previously stated, research confirms that effective professional development consists of active, content-focused learning conducted over longer periods of time (Garet, Porter, Desimone, Birman, & Yoon, 2001). However, the Pathway project exceeded traditional commitments of time and energy for some participants. Clearly, this balance is a challenge for any online professional development initiative that has high expectations, particularly for those involving new technologies and innovative approaches to teaching and learning.

Attrition. Another significant challenge for the project was attrition. A few participants did not participate in Moodle as promised, some ceased participation in the project altogether, and others lost their teaching positions due to budget reductions. In other cases, districts were short on personnel to recruit teachers or teachers may have changed schools during the life of the project. In one unfortunate case, a participant died. Although the reasons for changes in participation varied and are not unforeseen in a project of this size, nearly 33% of participants changed during Year 1, followed by less attrition in Year 2. Further, participants who did not complete the assignments, rather than formally quitting the project, defined attrition in Year 2.

This amount of change in participation can lead to challenge in several ways. Participants who enroll late may not be able to catch up in time or, if they do, their experience is qualitatively different than participants who were able to fully engage within the community of practice that evolved during the project. Further, newer recruits were sometimes asked to participate rather than volunteer. Facilitators described this latter group as "reluctant participants." They were often difficult to motivate and appeared disengaged in the activities.

Funding. The Pathway Project was a finitely funded initiative that provided technical support, infrastructure, and support for facilitators. Without this support, future implementations of the professional development would clearly be difficult and would have to be re-shaped according to available resources. Stipends, which may be used for materials or other items, were given to participants who completed each Module. Beyond the extrinsic rewards of the project cited often by participants, it would appear that the stipends served as an effective motivator for participants to

persevere through a wide range of learning activities and project expectations.

Motivation. The level of rigor of the professional development activities resulted in meaningful learning gains for a majority, but also a clear overload and frustration for some. Overall, though, the approaches employed appear to have a achieved a good balance between "carrot" and "stick." This has implications in terms of motivation and also for the ability to replicate the project. Adequate funding for stipends and equipment appears to be a key component for successful implementation of the project as envisioned.

Collaboration. The ability for facilitators to promote continued collaboration has been identified as an area of strength, but also cited by some as an area for improvement. Facilitators required that participants work together during Module 1. This promoted a sense of community in which participants were comfortable and free to interact with one another. By contrast, Module 2 included the opportunity to ask and help answer questions in the "Assignment Questions Forum." However, there were no active discussion forums beyond that. As intended, the questions and responses posted in the Assignment Forum were primarily to clarify details about the assignments and to later get help with logistics for creating and troubleshooting the web pages. Additional collaboration occurred pertaining the Collaborative Nevada Project in subsequent modules.

Unlike in Module 1 when participation in discussions was required, there was little higher-level discussion in subsequent modules addressing issues of teaching and learning with technology. Thus, as learning activities are increasingly differentiated and individualized, it may be a challenge to continue to grow and/or support the evolving community of practice in the project.

Accountability and Support. A related challenge pertains to the evolving role of facilitators and their attempt to balance being supportive of participants while also holding them accountable to project expectations. Initially during Module 1, the professional development was modeled after a university course with numerous assignments and assessments conducted by the facilitators. In subsequent modules, facilitators opted to rely more on self-assessments by the teachers while also still holding them accountable to the expectations of the assignments, to varying degrees. While this approach lightens the load on facilitators and perhaps enhances their role as support providers, it also may have contributed for some to a "lower bar," for instance in the case the final MAP reports and the CNP contributions of some participants. It is a clear challenge to foster rigorous, high quality participant outcomes, holding them accountable to project goals while also shifting toward greater reliance on differentiated learning, self-assessment, and peer feedback.

Administrative Component. Another challenge involves getting the desired participation of building administrators in the professional development component of the project. Adjustments were made, but the expectations for administrators clearly lacked the rigor and high expectations of the teacher component. Some participants cited administrator support as an area for improvement in the project.

8. Recommendations

Based on data gathered and the challenges identified, the following suggestions are offered for going forward with another large-scale iteration of the project. In addition, recommendations are offered for implementing the modules independent of the project.

1. *Equipment:* Several participants voiced concern over beginning the project when they did not have the technology or materials to accomplish the assignments. Facilitators confirmed this problem, which was primarily due to timing and was a responsibility of the individual districts. Although a challenge sometimes, it is recommended that the PD begin only after equipment has arrived.
2. *Focus Activities:* Activities should be focused, perhaps limiting the scope of offerings. As has been the case, time commitments should be revisited and reduced as needed as it was during Modules 3 and 4.
3. *Balance Activities:* It is recommended that facilitators target a productive balance between collaborative and independent, focused activities. This balance may come from activities formerly included in Module 1 to limit the intensity of that module while supporting collaboration in Module 2.
4. *Depth vs. Breadth/Differentiation:* Participants described an interest in probing a topic of their interest and relevance to their students. Participants have varying competencies and prior knowledge. Allowing them more choice, while providing appropriate structure and manageability, may be a solution. One option may include a tiered assignment system per topic. Tier 1 assignments may probe less or be easier to introduce into more classrooms. By contrast, higher tier assignments would involve much more depth, careful consideration, planning, and time. To ensure some parity among experiences, a simple value system could be used. For example, a tier 1 assignment could be worth 1 point, a tier 2 could be 2, and a tier 3 could be 3. If facilitators required 3 total points for each topic, then participants could choose, as they felt appropriate.
5. *Collaborative Nevada Project:* In a similar vein, options for collaboration might be made available within the CNP. While some participants expressed excitement about collaborating across interdisciplinary teams distributed across Nevada, others noted a preference for collaboration with either school-based partners or subject area peers within the Pathway project. Providing choice (e.g., in-school partnerships, across district partnerships, content partnerships, or other partnerships using electronic means) would help limit the stress associated with the CNP. Of course, providing for such variation would create a level of complexity and accompanying challenges in terms of facilitating these options, but it would also allow participants to make further choices about what to pursue based on their context and perceived needs.
6. *Differentiated Scheduling:* The ability to select a section during Module 2 and work independently during other modules provided participants with flexibility and an opportunity to focus their efforts. Similarly, this allowed facilitators the ability to manage significantly fewer participants at one time. Smaller, manageable groups (e.g., content area groups) that can still interact as a community (e.g., groups of 40-60 participants) should be the standard.
7. *Build Communities of Practice:* Although collaboration was a challenge, it can be facilitated and enhanced with existing technology and/or new technology (e.g., video conferencing). Opportunities for collaboration can also be made available for Pathway colleagues during times when modules are not in session or through opportunities for face-to-face meetings within the region or district should be considered (e.g., summits, retreats, etc.).
8. *Facilitation:* Self-assessment appeared to streamline facilitation and distribute some of the responsibilities of managing the PD to the participants. This could also be achieved by relying on the community of practice, peer-review and evaluation more as the project evolves.
9. *Administrators:* Technology integration would greatly benefit from increased participation on the part of administrators.
10. *Extend Communities:* Participants may benefit from an affinity space beyond the confines and boundaries of the Pathway Moodle, forum, and content. This could support and scaffold communication and exchanges during breaks, between modules, and after the conclusion of the project.

9. Conclusions

Evaluation findings support the effectiveness of Nevada Pathway Project to affect change in teachers' attitudes, knowledge, and classroom practice. Strengths of the project include ready access to the technology tools and the opportunity to explore a wealth of web-based applications and resources for classroom use. Participants also praised the collaboration and sharing of resources and expertise and the level of communication and feedback provided by project facilitators and participants.

Pertaining to student outcomes, findings indicate consistent advances in students' 21st Century skills. Perhaps the most compelling outcome, confirmed by classroom observations and teacher interviews, has been the level of student engagement attained. Findings show that students are indeed motivated by the various technology tools and applications employed. Further, many teachers reported transformative changes in their beliefs and practices as a result of student use of the technology.

As might be expected, the time involved in the PD was cited as a concern for many of the participants. Clearly the approach to PD was long-term and rigorous, which accounts for the positive changes teachers experienced as well as the frustrations reported by others. In addition, teachers cited issues with the statewide collaborative project, which was a stretch for some in terms of the time involved and its fit with their prescribed curriculum.

Overall, the project was an ambitious statewide initiative that had a significant impact on teachers' technology integration beliefs and practices. In considering the number of entities involved and the scope of the project, Pathway staff and participants have done exceptionally well in implementing the project as it was conceived. Findings indicate that the model for online professional development is viable, particularly in concert with access to rich technology resources and the expertise and support provided by project facilitators. Furthermore, much can be gleaned from the extensive materials and experiences acquired within the project that would inform alternative implementation approaches, including a non-facilitated model. Clearly, though, the facilitators served as the "glue" for the project; alternative strategies would need to be employed to replicate the project's effectiveness in the absence of any of its key components.

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11. Appendices

i. Appendix A: Evaluation System

During the baseline data planning and collection phase, the external evaluation team completed the initial design of a database intended to house all data for the project (Figure 1). Further, an online system delivered from the Online Professional Development course management system (i.e., Moodle) was developed to deliver four instruments (Figures 2 and 3). The evaluation system was designed and developed expressly to collect and organize information from participants in the Pathway Project.

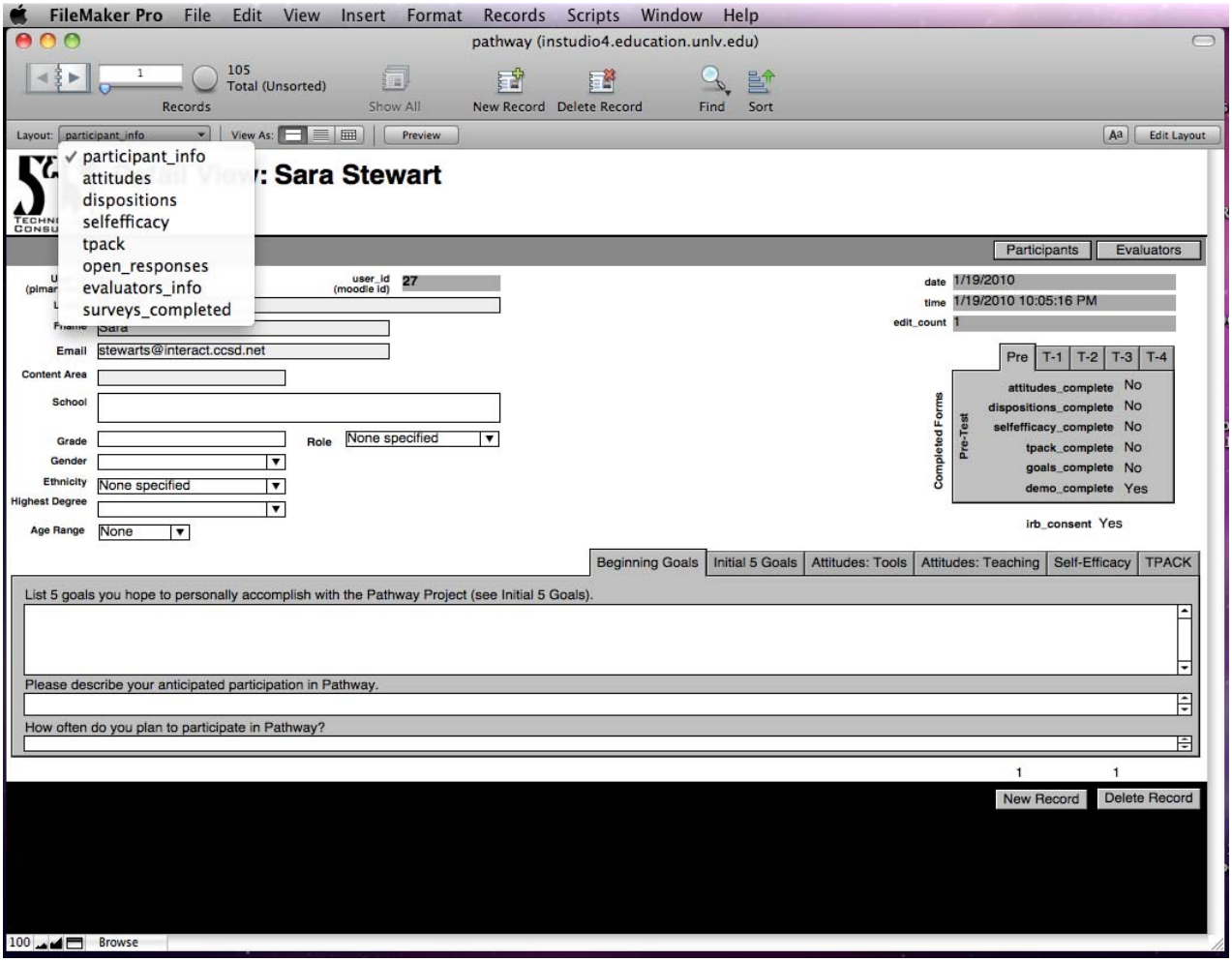

Figure 3. Back-end FileMaker Database

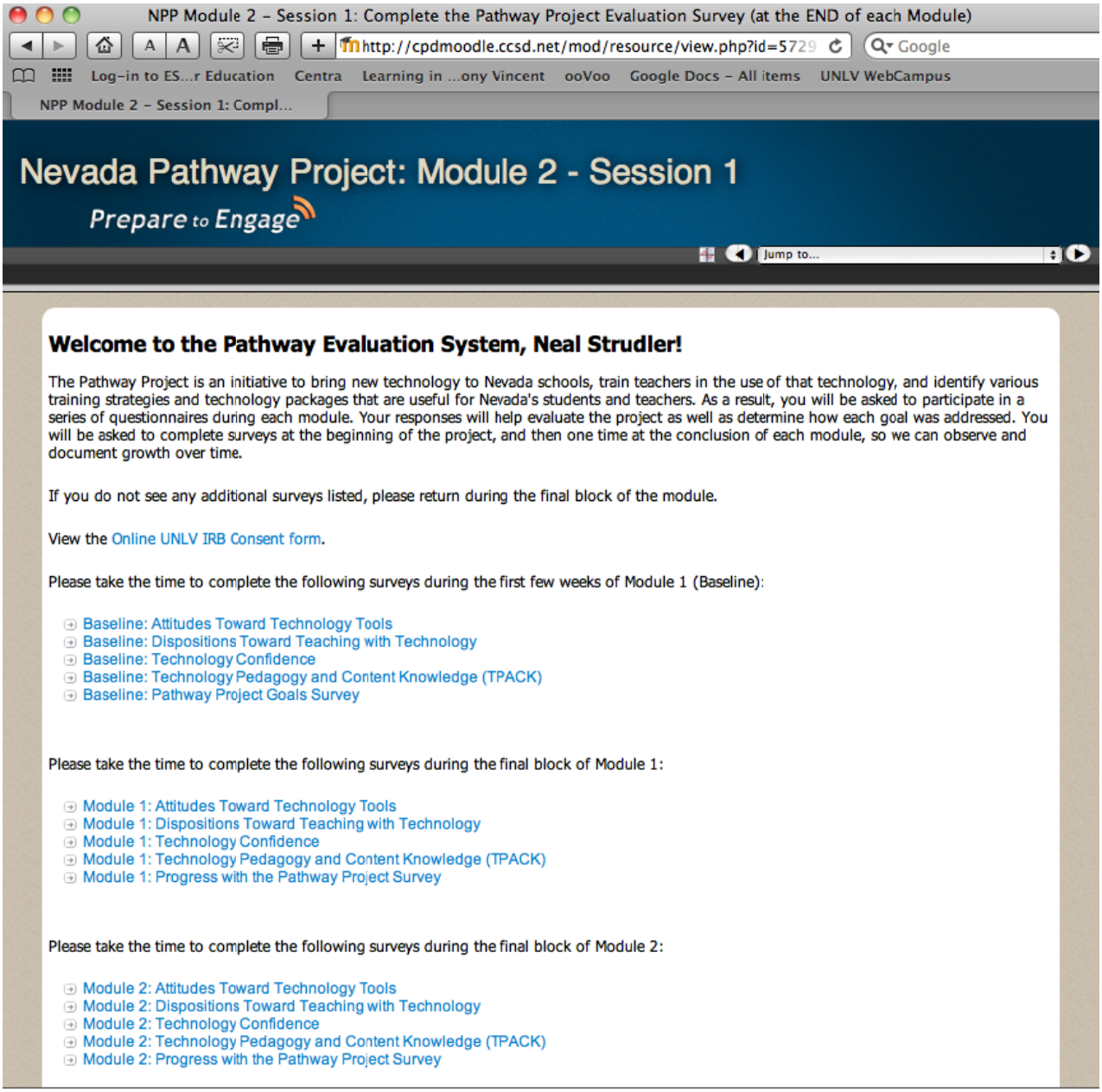

Figure 4. PHP Survey System deployed via the professional development system (i.e., Moodle)

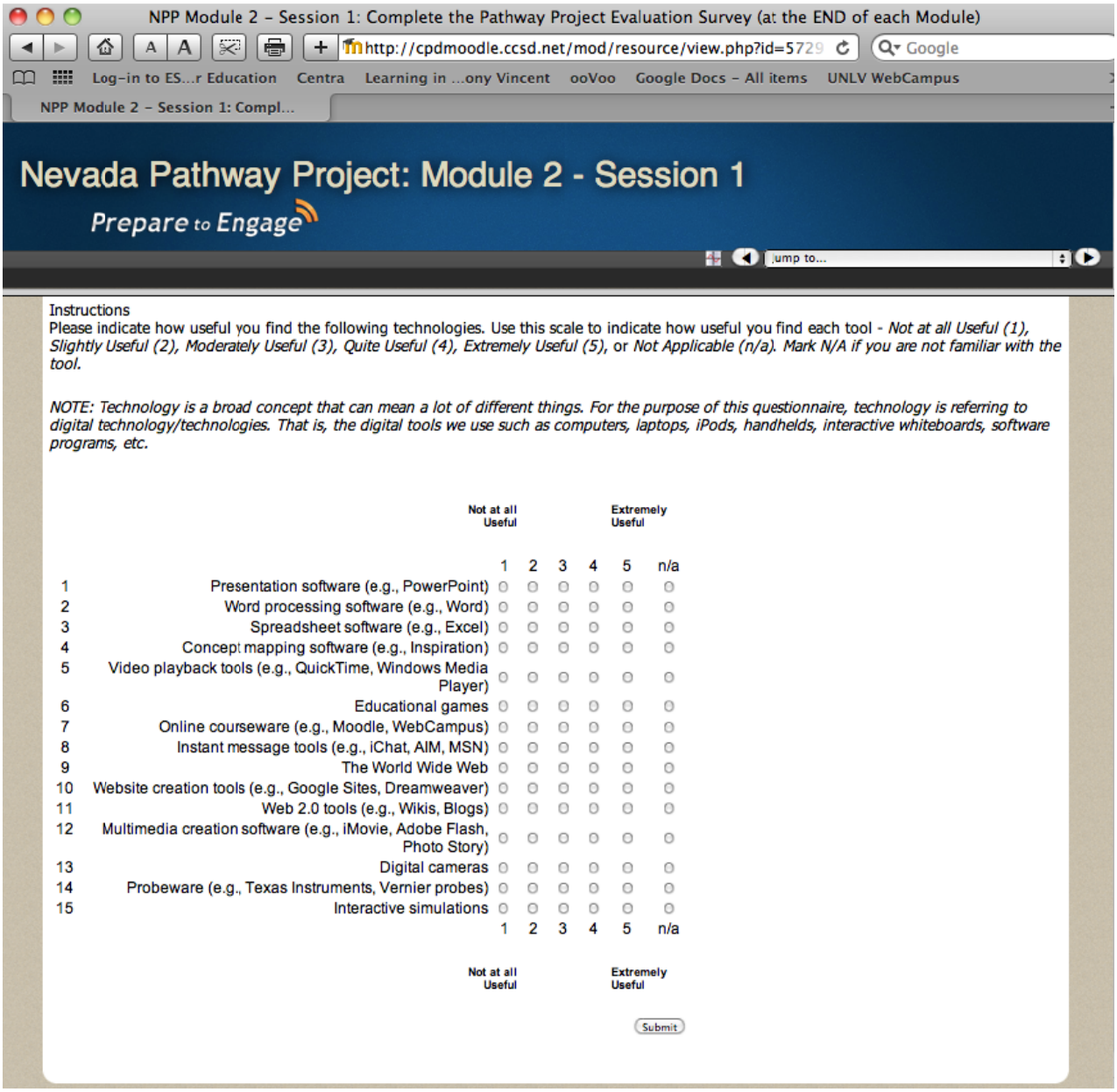

Figure 5. Example Survey within the Evaluation System

ii. Appendix B: Pathway Teacher Questionnaire

This questionnaire is being administered to all teachers who are participating in the Pathway Project. Your responses are confidential. You do not have to answer any question that you do not want to, just skip it and go to the next question.

NOTE: Technology is a broad concept that can mean a lot of different things. For the purpose of this questionnaire, technology is referring to digital technology/technologies. That is, the digital tools we use such as computers, laptops, iPods, handhelds, interactive whiteboards, software programs, etc.

Section A – Background Information

First Name: _____
Last Name: _____
Primary Content Area: _____
Current School: _____
Role In School: _____
Grade: _____

Your Age Range:
a) 21-24
b) 25-29
c) 30-34
d) 35-39
e) 40-44
f) 45-50
g) 51-54
e) 55+

Your Gender: Male / Female
Your Race/Ethnicity:
a) White
b) Black
c) Hispanic
d) Asian or Pacific Islander
e) American Indian or Alaskan Native
f) Other (please indicate) _____

Your Highest Degree:
Bachelors ___ Masters ___ Masters +30 ___ Doctorate ___

Goals:
1. List 5 personal goals you hope to accomplish as a result of the Pathway Project. _____
   _____
2. How involved do you plan to become with the Pathway Project? _____
   _____
3. How often do you plan to participate? _____
   _____

Section B – Attitudes Toward Technology Tools

Instructions

Please indicate how useful you find the following technologies. Use this scale to indicate how useful you find each tool - *Not at all Useful (1), Slightly Useful (2), Moderately Useful (3), Quite Useful (4), Extremely Useful (5). Mark N/A if you are not familiar with the tool.*

NOTE: Technology is a broad concept that can mean a lot of different things. For the purpose of this questionnaire, technology is referring to digital technology/technologies. That is, the digital tools we use such as computers, laptops, iPods, handhelds, interactive whiteboards, software programs, etc.

	Not at all Useful				Extremely Useful	
1) Presentation software (e.g., PowerPoint)	**1**	**2**	**3**	**4**	**5**	**N/A**
2) Word processing software (e.g., Word)	**1**	**2**	**3**	**4**	**5**	**N/A**
3) Spreadsheet software (e.g., Excel)	**1**	**2**	**3**	**4**	**5**	**N/A**
4) Concept mapping software (e.g., Inspiration)	**1**	**2**	**3**	**4**	**5**	**N/A**
5) Video playback tools (e.g., QuickTime, Windows Media Player)	**1**	**2**	**3**	**4**	**5**	**N/A**
6) Educational games	**1**	**2**	**3**	**4**	**5**	**N/A**
7) Online courseware (e.g., Moodle, WebCampus)	**1**	**2**	**3**	**4**	**5**	**N/A**
8) Instant message tools (e.g., iChat, AIM, MSN)	**1**	**2**	**3**	**4**	**5**	**N/A**
9) The World Wide Web	**1**	**2**	**3**	**4**	**5**	**N/A**
10) Website creation tools (e.g., Dreamweaver, Google sites)	**1**	**2**	**3**	**4**	**5**	**N/A**
11) Web 2.0 tools (e.g., Wikis, Blogs, etc.)	**1**	**2**	**3**	**4**	**5**	**N/A**
12) Multimedia creation software (e.g., iMovie, Adobe Flash, Photo Story)	**1**	**2**	**3**	**4**	**5**	**N/A**
13) Digital cameras	**1**	**2**	**3**	**4**	**5**	**N/A**
14) Probeware (e.g., Texas Instruments, Vernier probes)	**1**	**2**	**3**	**4**	**5**	**N/A**
15) Interactive simulations	**1**	**2**	**3**	**4**	**5**	**N/A**
	Not at all Useful				Extremely Useful	

Section C – Dispositions Toward Teaching With Technology

Instructions

Please indicate how much you agree or disagree with the following statements. Use this scale to indicate your level of agreement – *Strongly Disagree (1), Slightly Disagree (2), Neither agree nor Disagree (3), Slightly Agree (4), Strongly Agree (5).*

NOTE: Technology is a broad concept that can mean a lot of different things. For the purpose of this questionnaire, technology is referring to digital technology/technologies. That is, the digital tools we use such as computers, laptops, iPods, handhelds, interactive whiteboards, software programs, etc.

	Strongly Disagree				Strongly Agree
1) Technology helps students learn	**1**	**2**	**3**	**4**	**5**
2) Technology can promote deep understanding	**1**	**2**	**3**	**4**	**5**
3) Technology can help students complete homework	**1**	**2**	**3**	**4**	**5**
4) Technology can help students locate information	**1**	**2**	**3**	**4**	**5**
5) Technology can help verify information	**1**	**2**	**3**	**4**	**5**
6) Technology can enhance communication	**1**	**2**	**3**	**4**	**5**
7) Technology should be central to instruction	**1**	**2**	**3**	**4**	**5**
8) Technology can facilitate planning	**1**	**2**	**3**	**4**	**5**
9) Technology enhances record keeping	**1**	**2**	**3**	**4**	**5**
10) Technology permits the free exchange of ideas	**1**	**2**	**3**	**4**	**5**
11) Technology can enrich instruction	**1**	**2**	**3**	**4**	**5**
12) Technology is an effective instructional support	**1**	**2**	**3**	**4**	**5**
13) Technology can build online communities of students	**1**	**2**	**3**	**4**	**5**
14) Technology can build online communities of practitioners	**1**	**2**	**3**	**4**	**5**
15) Technology can create inclusive learning environments	**1**	**2**	**3**	**4**	**5**
	Strongly Disagree				Strongly Agree

Section D – Technology Confidence

Instructions

Please indicate your level of confidence in performing each of the tasks below. Use this scale to indicate your level of confidence - *Not Confident (1), Slightly Confident (2), Moderately Confident (3), Quite Confident (4), Extremely Confident (5). Mark N/A if you are not familiar with the tool.*

NOTE: Technology is a broad concept that can mean a lot of different things. For the purpose of this questionnaire, technology is referring to digital technology/technologies. That is, the digital tools we use such as computers, laptops, iPods, handhelds, interactive whiteboards, software programs, etc.

	Not at all confident	Extremely confident	
1) Check email	1 2 3 4 5		N/A
2) Enter student grades	1 2 3 4 5		N/A
3) Locate information online	1 2 3 4 5		N/A
4) Create an interactive presentation	1 2 3 4 5		N/A
5) Send attachments	1 2 3 4 5		N/A
6) Resize a digital image	1 2 3 4 5		N/A
7) Capture digital video	1 2 3 4 5		N/A
8) Share an audio file online	1 2 3 4 5		N/A
9) Create web page	1 2 3 4 5		N/A
10) Start a video-chat session	1 2 3 4 5		N/A
11) Track changes in a word document	1 2 3 4 5		N/A
12) Collaborate using a wiki	1 2 3 4 5		N/A
13) Utilize distance learning tools	1 2 3 4 5		N/A
14) Use an interactive smart board	1 2 3 4 5		N/A
15) Create an electronic quiz	1 2 3 4 5		N/A
	Not at all confident	Extremely confident	

Section E – Technology Pedagogy and Content Knowledge (TPACK)

Instructions

Please indicate how much you agree or disagree with the following statements. Use this scale to indicate your level of agreement – *Strongly Disagree (1), Slightly Disagree (2), Neither agree nor Disagree (3), Slightly Agree (4), Strongly Agree (5).*

NOTE: Technology is a broad concept that can mean a lot of different things. For the purpose of this questionnaire, technology is referring to digital technology/technologies. That is, the digital tools we use such as computers, laptops, iPods, handhelds, interactive whiteboards, software programs, etc.

TK (Technology Knowledge)	Strongly Disagree	Strongly Agree
1) I know how to solve my own technical problems.	1 2 3 4 5	
2) I can learn technology easily.	1 2 3 4 5	
3) I keep up with important new technologies.	1 2 3 4 5	
4) I frequently play around with technology.	1 2 3 4 5	
5) I know about a lot of different technologies.	1 2 3 4 5	
6) I have the technical skills I need to use technology.	1 2 3 4 5	
7) I have had sufficient opportunities to work with different technologies.	1 2 3 4 5	
CK (Content Knowledge)	Strongly Disagree	Strongly Agree
8) I have sufficient knowledge about [my content area].	1 2 3 4 5	
9) I can use a "[my content area]" way of thinking.	1 2 3 4 5	
10) I have various ways to develop my understanding in [my content area].	1 2 3 4 5	
PK (Pedagogical Knowledge)	Strongly Disagree	Strongly Agree
11) I know how to assess student performance in a classroom.	1 2 3 4 5	
12) I can adapt my teaching based upon what students currently understand or do not understand.	1 2 3 4 5	
13) I can adapt my teaching style to different learners.	1 2 3 4 5	
14) I can assess student learning in multiple ways.	1 2 3 4 5	
15) I can use a wide range of teaching approaches in a classroom setting (e.g., collaborative learning, direct instruction, inquiry learning, problem/project based learning)	1 2 3 4 5	
16) I am familiar with common student understandings and misconceptions.	1 2 3 4 5	
17) I know how to organize and maintain classroom management.	1 2 3 4 5	
PCK (Pedagogical Content Knowledge)	Strongly Disagree	Strongly Agree
18) I know how to select effective teaching approaches to guide student thinking and learning in [my content area].	1 2 3 4 5	
TPK (Technological Pedagogical Knowledge)	Strongly Disagree	Strongly Agree
19) I can choose technologies that enhance the teaching approaches for a lesson.	1 2 3 4 5	
20) I can choose technologies that enhance students' learning for a lesson.	1 2 3 4 5	
21) My teacher education program has caused me to think more deeply about how technology could influence the teaching approaches I use in my classroom.	1 2 3 4 5	
22) I am thinking critically about how to use technology in my classroom.	1 2 3 4 5	
23) I can adapt the use of the technologies that I am learning about to different teaching activities.	1 2 3 4 5	
TPACK (Technology Pedagogy and Content Knowledge)	Strongly Disagree	Strongly Agree
24) I can teach lessons that appropriately combine [my content area], technologies, and teaching approaches.	1 2 3 4 5	
25) I can select technologies to use in my classroom that enhance what I teach, how I teach, and what students learn.	1 2 3 4 5	
26) I can use strategies that combine content, technologies, and teaching approaches that I learned about in my coursework in my classroom.	1 2 3 4 5	

27) I can provide leadership in helping others coordinate the use of content, technologies, and teaching approaches at my school and/or district.	1 2 3 4 5	
28) I can choose technologies that enhance the content for a lesson.	1 2 3 4 5	
Models of TPACK	Strongly Disagree	Strongly Agree
29) Pathway Project Facilitators appropriately model combining content, technologies, and teaching approaches.	1 2 3 4 5	
30) My peer teachers in the Pathway project appropriately model combining content, technologies, and teaching approaches.	1 2 3 4 5	
31) My colleagues in my school and/or district appropriately model combining content, technologies, and teaching approaches.	1 2 3 4 5	
	Strongly Disagree	Strongly Agree

Section F – Pathway Open-Ended Items

Instructions

Please consider your experience in the Pathway Project and respond to the following questions.

Time 1: At the End of Module 1

1. List 3 things you think are going well with the Pathway Project.
2. List 3 things you would improve.
3. List 3 things you have learned already.
4. List 3 things you hope to learn before the end of Pathway.

Time 2: At the End of Module 2

1. List 3 things you think are going well with the Pathway Project.
2. List 3 things you would improve.
3. List 3 things you have learned already.
4. List 3 things you hope to learn before the end of Pathway.

Time 3: At the End of Module 3

1. List 3 things you think are going well with the Pathway Project.
2. List 3 things you would improve.
3. List 3 things you have learned already.
4. List 3 things you hope to learn before the end of Pathway.

Time 4: At the End of Module 4

1. List 3 things you think went well with the Pathway Project.
2. List 3 things you would improve.
3. List 3 things you learned.
4. Before Module 1, you indicated that you had [five goals]. Please select one that was well addressed and one that was not. How did Pathway influence your preparation?
5. Describe your overall involvement with the Pathway Project overall?
6. Approximately how often did you participate in the Pathway Project?

iii. Appendix C: Project Evaluation Team

Drs. P.G. Schrader and Neal Strudler serve as the evaluators for the Pathway to Nevada's Future project. Drs. Schrader and Strudler are responsible to complete the work associated with the Pathway evaluation, including instrument development, technology support, database creation, data collection, data analysis, and reporting. Further, team members have extensive background in educational technology and technology integration. A brief biographical sketch for each team member is provided below:

Dr. P.G. Schrader: Dr. Schrader is an Associate Professor of Educational Technology at the University of Nevada, Las Vegas. P.G. has researched and published in the areas of large-scale program evaluation, technology integration, online literacy, learning, and immersive environments. He has extensive expertise in online evaluation methods, data collection, quantitative and qualitative methods, and instrument development.

Dr. Neal Strudler is a Professor of Educational Technology and Assistant Chair in the department of Curriculum and Instruction at the University of Nevada, Las Vegas. Dr. Strudler has researched and published in the areas of effective technology integration, technology, educational change, and evaluation. He is a former seventh grade teacher and brings many years of expertise in evaluation and k-12 technology integration to the evaluation team.

iv. Appendix D: Rational for Not Emphasizing Standardized Tests

Related to documenting student learning, a conscious choice was made by project leaders and evaluators to employ measures that are well aligned with the project's goals. In his volume *Technology and Assessment*, Michael Russell, a nationally recognized expert in this area, characterized the problem and provided a strong rationale for not relying on standardized tests to assess the learning goals of this project. He explained:

> *Although it is attractive to use existing measures of learning such as standardized tests to examine the impact of technology on learning, standardized tests are often not well aligned with the learning that occurs with computers (Russell, 2006; p. 185).*

Russell added:

> *A second problem associated with standardized tests to examine impacts of technology on learning is that in the vast majority of cases, standardized tests do not allow students to use computers when working on the test…. Given that students will increasingly be using computer-based tools once they enter the workplace, the focus on cognitive residue or transferability of skills developed on a computer to skills demonstrated on paper seems short-sighted (p. 186).*

Finally, Russell concluded that it is critical "to employ measures of learning that are sensitive to the types of learning that occur when students use a given technology" (p. 202).

The National Research Council (2001) report *Knowing What Students Know* also addressed the role of technology in transforming both the kinds of learning that should be assessed and the assessment methods used. The report confirmed that there is often

> *a mismatch between the learning goals of many educational technology programs and the data obtained from standardized tests. Despite their inappropriateness, however, many persist in using such data as the primary basis for judging the effectiveness and value of investments in educational technology (p. 282).*

Thus, as the overall goal of this project is to increase technology integration in Nevada classrooms and provide students with innovative, 21st century learning experiences, the evaluation of student achievement will be based on multiple measures of student learning, including classroom-based measures developed by participating teachers and project staff that employ technologies encountered during the project. Further, this evaluation pertains to initial, baseline data and outcomes are expected to manifest after participating teachers have had sufficient time to a) learn the technology tools and strategies related to the professional development, and b) implement those tools and strategies with students.

References

National Research Council. (2001*). Knowing what students know: The science and design of educational assessment.* Washington, D.C.: National Academy Press.

Russell, M. (2006). *Technology and assessment: The tale of two interpretations*. Greenwich, CT: Information Age Publishing.

20мл-201м EETT Regular Competitive

Churchill County School District

Clark County School District

Washoe County School District

White Pine County School District

Churchill County School District

Enhanced Education Through Technology
Subgrant
Public Law 107-110
Enhancing Education Through Technology
Improving America's Schools Act of 1994

Project 10-765-01000
EETT Consortium Grant of
Churchill County School District
Humboldt County School District
Lander County School District
Mineral County School District
Nye County School District
Pershing County School District
Storey County School District

2009-2011 Final Evaluation Report

June 15, 2011

Consultant/Evaluator
Gary Imelli
3322 Austin Hwy
Fallon, Nevada 89406
imellig@cccomm.net
775-423-5868

Gary Imelli
Educational Consultant
3322 Austin Hwy
Fallon, Nevada 89406
775-426-8461
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June 20, 2011

Sue Chambers
Federal Programs Facilitator
Churchill County School District
Fallon, Nevada 89406

Dear Mrs. Chambers,

I want to thank you for allowing me the opportunity to work with you and the district in my role as evaluator for the Enhancing Education Through Technology Subgrant the district received last year. You were very helpful in aiding my role when asked and Michelle Richardson was an excellent model of providing professional development to teachers. She documented, taught, encouraged and facilitated a very innovative method of providing professional development using technology. She is an outstanding example of a professional.

As I review the progress this year in comparison to last year, the first year of the two year grant, I remember offering two suggestions for this year. One was an emphasis on creating behaviors identified with the 21st Century Skills and the other was to involve principals in the grant at the first of the year and to have them complete a monthly observation checklist. I have found that the skills have been implemented into the daily lesson development by teachers and have become second nature without identifying them individually. Principals have been more involved this year as supported by their reaction and response to our request for a completed survey. I have corresponded with each principal except one and believe they do have a knowledge and involvement of the grant requirements. Future grants of this nature would be improved by having the principals monitoring the requirements of the grant.

Please note my final conclusion on page 23 of the evaluation document.

If I can be of additional help in planning for the second year involvement feel free to contact me.

Sincerely,

Gary Imelli
EETT Consortium Grant Evaluator
Cc: Michelle Richardson, IT Instructor

Enhanced Education Through Technology
Subgrant
Public Law 107-110
Enhancing Education Through Technology
Improving America's Schools Act of 1994

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Churchill County School District
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June 15, 2011

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Gary Imelli
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Table of Contents

PROJECT OVERVIEW:

Churchill, Humboldt, Lander, Mineral, Nye, Pershing and Storey County School Districts collaborated in applying for and receiving a subgrant under the Enhancing Education Through Technology funds. In May 2008 the Nevada Commission on Education Technology and the Nevada Department of Education conducted a state-wide technology survey. The survey found that "while a number of classrooms are well equipped for teacher-led instruction, very few are equipped for student-centered instruction that utilizes computers", and"professional development opportunities are not sufficient to support the more effective uses of computer technology in the classroom." The report concluded that "moving forward, the state would benefit from increased coordination and collaboration between the districts. This may be even more beneficial if done between districts of similar sizes." This proposal attempted to tie those districts together in order to share resources and tackle common challenges that are not factors in larger, more urban districts.

In establishing goals for the grant, research shows that each technology plays a different role for students. Computers tend to be used to increase students' knowledge and skills where as other technology such as interactive white boards (IWB) can assist with the learning process and serve as a tool to help develop higher order thinking skills, creativity and research skills. Past practice in some districts has utilized IWB technology to increase student achievement, increase student engagement, and to create a classroom that supports 21st Century Skills for students.

The grant focused on the unique needs of the rural districts for purchase, distribution and installation of these innovative systems plus the support and professional development. The seven districts would benefit from professional help desk support, integrated technology instructional design, sustained professional development and shared grant writing. The grant would purchase 60 IWB systems with lap top computers and the support of 2 full time staff, 1 part time trainer and 1 stipend for a maintenance online support person. The request was for $778,855.02.

After initial review of the grant the award was reduced to $216,006.19. The revised application funded 25 IWB systems and laptop computers, 25 teacher participants, ½ time professional development instructor, contracted services for staff development support for Pershing, Humboldt and Lander County School Districts, travel and lodging for travel to trainings in Fallon, books and supplies and evaluation services. The project goals for staff development through 4 classroom instruction sessions, on line webinars and student progress and engagement goals remained the same but goals for tutorials and on line technical support "help line" was eliminated.

YEAR TWO:

After a successful first year of following the grant requirements the districts again refocused on the original project goals and the amount of funding necessary to accomplish those goals. The first change was to eliminate the additional instructor for Pershing, Humboldt and Lander School Districts. Classes provided were on line webinars and no on site Saturday classes were offered. Four participants were replaced with four new teachers and two additional IWB systems were purchased, one for the new teacher in Churchill and one for the lead instructor. Nineteen incentive technology systems were purchased for those teachers completing the training requirements. Travel, lodging and conference registration for twelve participants and the instructor for the ISTE Conference in Philadelphia was added as an expenditure. The project in the second year was funded at $118,530.99 with carryover from the previous year.

The following documents, Strategies/Activities worksheet, Professional Development Plan, Evaluation and Dissemination Plan, Project Timeline and Budget Expenditure Summary are submitted with the appropriate edits to reflect the revised application and goals for this second year of funding. .

Outcome Statement:
Students will benefit from the integration of technology as a tool for student centered instruction in an effort to increase their 21st Century Skills with teachers that are knowledgeable, trained, and supported in the use of integrated technology as a tool in the classroom to enhance these skills..
Teachers in rural districts will excel at student centered instruction with interactive white board system technology, integration of technology into the curriculum, just in time and sustained professional development, technology/lesson plan collaboration, and supported by certified trainers.

Goal I (related to Need):
Teachers will receive interactive white board technology systems during the 2009-2010 school year with support and professional development during 2009-2011 in order to increase their knowledge of and use of student centered instruction.

Objective (marking progress toward Goal I):
To improve student 21st Century skills by focusing on student centered instruction using integrated technology by 100% of the teachers as evidenced in lesson plan design and implementation.

Strategy I (supporting Goal I):

Provide professional development for 100% of the teachers through webinars, classroom observation/feedback.

- Activity 1 (supporting Strategy I):

Provide training in interactive white board (IWB) systems

- Activity 2 (supporting Strategy I):

Provide professional development through site visits and webinars for integrating lessons plans using IWB

Milestones to document progress toward Goal):

Teachers will
- complete all required professional development sessions,
- access online webinars,
- completed required lesson plans and video

Objective (marking progress toward Goal I):

100% of the teachers will have immediate access to scheduled professional development webinars, during the two year project.

Goal 2 (related to Need):

Students will increase their 21st Century skills by receiving student centered instruction using integrated technology (ISTE National Educational Technology Standards for students)

Objective (marking progress toward Goal I):

To improve students' 21st Century Skills in 7 rural school districts as evidenced in teacher lesson plans using integrated technology

Strategy I (supporting Goal I):

Provide student access to integrated technology using the interactive white board for student centered learning that focuses on creativity and innovation, communication and collaboration, research and fluency, critical thinking, problem solving and decision making, digital citizenship and technology operations and concepts.

- Activity 1 (supporting Strategy I):

Instruct students in the technology operation of the system and the digital citizenship that accompanies its use

- Activity 2 (supporting Strategy I):

Provide lessons that require critical thinking, problem solving and decision making in a collaborative manner.

- Activity 3 (supporting Strategy I):

Explore complex systems requiring research and information using creativity and innovation

Milestones to document progress toward Goal):

- Lesson plans as submitted by teachers will allow the 21st Century Skills to be developed by students.
- 100% of the teachers will submit plans showing skill development.
- Some teachers in order to receive the incentives in the second year will provide online lesson plans, and tutorials.

Action Description	Ongoing Action		Person Responsible		
	Start	Stop	Name & Position	Duties	% Time on Project
Hire Project Director/ Teacher	*8/09*	*6/11*	*Michelle Richardson, Certified Teacher, SMART System trainer*	*Manage communication with vendors, districts representatives, other trainers, Website contractor, teacher for technical assistance*	*50%*
Contract with Humboldt County School District for services trainer			*Certified SMART System trainer*	*Provide Interactive White Board training for Humboldt, Pershing and Lander County*	*20%*
Contract with Oasis online for website/ technology support, Humboldt County for trainer *Grants management*	*8/09*	*6/11*	*Sue Chambers- Churchill* *Federal Programs Facilitator*	*Contract s and grants management*	*2%*
Purchase of all interactive white board systems and laptops	*8/09*	*9/09*	*Stacy Fisk Churchill – Federal Programs Sec*	*Do purchase orders, tracking, delivery tracking,*	*5%*
Installation of interactive white board systems	*9/09*	*1/10*	*Technology or Administrator for each District*	*Oversee installation by deadline of 1/15/10*	
Develop curricula for training- integration of technology through curriculum, conduct interactive white board training *interactive white board Training*	*1/10*	*6/11*	*Michelle Richardson- Churchill* *Humboldt*	*Produce Technology integration Tutorials / onsite training of Technology integration and classroom observations / webinars* *Onsite interactive white board training*	*50%* *20%*
Website construction, webinar support, tutorials, sustained professional development and archived tutorials, create help ticket system	*8/09*	*6/11*	*Dan Slentz/Contract*	*Website construction, maintenance, assist with tutorials, assist with webinars, archive tutorials, and maintain server, help tickets.*	*Contract-*

Reporting Requirements					
Semiannual Progress Report	*6/10*	*6/11*	*Michelle Richardson- Project Manager*	*Submit progress report*	
Annual Financial Report	*9/10*	*9/11*	*Lynn Broyles Business Office, Churchill*	*Submit final financial*	
Interim and Summative Evaluation Report	*7/10*	*7/11*	*Contract Evaluator*	*Collect data, surveys, and finalize report*	
Time and Effort Report	*6/10*	*6/11*	*Michelle Richardson,*	*Collect Time and Effort to submit*	

Grant Timelines

Activities	Month (2009-2010)											
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Management												
Hire Project Director		x										
Implementation												
Purchase Technology				x	x							
Teacher Training				x	x	x	x	x	x	x	x	
Follow-up Sessions						x	x	x	x	x	x	
Evaluation												
Evaluation				x	x	x	x	x	x	x	x	x

Activities	Month (2010-2011)											
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Management												
Continue with Project manager		x	x	x	x	x	x	x	x	x	x	x
Implementation												
Teacher Training			x		x	x	x	x	x	x	x	
Follow-up Sessions												
Incentive											x	
Evaluation												
Evaluation			x		x	x	x	x	x	x	x	x

PROFESSIONAL DEVELOPMENT PLAN:

High quality professional development will be focused on changing knowledge, skills and behaviors of teachers and students. It will be accomplished through a variety of means including hands on, face to face support, webinars, and forums. In the first year two certified interactive white board system trainers will support the seven districts with interactive white board system hardware/software training. In the second year one certified interactive white board system trainer will provide webinar and email support and training to all district participants. Critical to the use of the interactive white board technology so that it doesn't become a glorified expensive chalk board, is the ability to create high quality lessons that support higher order thinking skills and increases student engagement in support of 21st Century Skills. Teachers who agree to receive this technology also agree to the professional development requirements as listed in the professional development detail plan. As an incentive for completing 95% or more of the assignments, teachers will receive a document camera in the first year and a set of Smart Responders in the second year which is an enhancement supported by their interactive whiteboard system.

EVALUATION PLAN:

The Consortium will contract with an experienced and skillful evaluator through the fiscal agent, Churchill County School District. The evaluation will be devoted to changes in knowledge, skills and behaviors of teachers and students as evaluated through perception, practice and accountability. It will also evaluate the use of the strategies as a professional development tool for consortiums of rural districts where distance is an issue to attend onsite professional development.

The evaluation component will be for the assessment of:

- The web as a professional development tool
    - webinars as professional development
- Change in teacher knowledge of use of lessons based on 21st Century Skills
- Change in teacher skill with use of interactive technology
- Change in teacher behavior by use of the integrated interactive technology
- Student improved engagement through perception surveys
- Administrator survey based on classroom observation of lessons, interactive technology and student engagement
- Teacher completion of the training (95%)

BUDGET EXPENDITURE SUMMARY
Enhancing Education Through Technology Title II-D

SCHOOL DISTRICT Churchill County — PROJECT NUMBER _____

Humboldt, Nye, Pershing, Lander, Storey, Mineral County Consortium

FISCAL YEAR 09-10

CHECK ONE: BUDGET X AMENDMENT ____ FINAL REPORT ____

OBJECT	DESCRIPTION	DIRECT INSTRUCTION	INSTRUCTION SUPPORT	ADMIN SUPPORT	TOTALS
100 & 200	Salaries & Benefits	0.00	46,680.00	0.00	46,680.00
300	Purchased Professional Services	0.00	5,000.00	2,500.00	7,500.00
400	Purchased Property Services	0.00	0.00	0.00	0.00
500	580 Staff Travel	0.00	8,600.00	0.00	
	Other	0.00	0.00	0.00	
	Other Purchased Services (Total)	0.00	8,600.00	0.00	8,600.00
600	610 General Supplies	0.00		0.00	
	640 Books and Periodicals	0.00	2,200.06	0.00	
	652 Technology Related Supplies	136,800.00	4,200.00	0.00	
	660 Instructional Kits	0.00	0.00	0.00	
	651 Software	2,500.00	0.00	0.00	
	Other	0.00	0.00	0.00	
	Supplies (Total)	139,300.00	6,400.06	0.00	145,700.06
800	810 Dues and Fees	0.00	0.00	0.00	
	Other	0.00	0.00	0.00	
	Other Objects (Total)	0.00	0.00	0.00	0.00
Subtotal 100 - 600 & 800		139,300.00	66,680.06	2,500.00	208,480.06
Indirect Costs	3.61% x Subtotal				7,526.13
700	730 Equipment: over $5,000 each	0.00	0.00	0.00	
	Other	0.00	0.00	0.00	
	Property (Total)	0.00	0.00	0.00	0.00
TOTAL		139,300.00	66,680.06	2,500.00	216,006.19

The object codes reflected on this budget are the new codes issued by the state for the account number conversion.

Signature: Susan Chambers
District Superintendent or Authorized Signature

9/14/09
Date

APPROVED
NEVADA DEPARTMENT OF EDUCATION
DEPARTMENT USE ONLY
OCT - 6 2009
EDUCATIONAL TECHNOLOGY CONSULTANT

Initial

10/6/09
Date Reviewed

FP-01
02/08

6

BUDGET EXPENDITURE SUMMARY
Enhancing Education Through Technology Title II-D

SCHOOL DISTRICT Churchill County
Humboldt, Nye, Pershing, Lander,
Storey, Mineral County Consortium

PROJECT NUMBER

FISCAL YEAR 10-11

CHECK ONE: BUDGET X AMENDMENT _ FINAL REPORT _____

OBJECT	DESCRIPTION	DIRECT INSTRUCTION	INSTRUCTION SUPPORT	ADMIN SUPPORT	TOTALS
100 & 200	Salaries & Benefits	0.00	40,510.40	0.00	40,510.40
300	Purchased Professional Services	0.00	11,500.00	0.00	11,500.00
400	Purchased Property Services	0.00	0.00	0.00	0.00
500	580 Staff Travel	0.00	4,900.00	0.00	
	Other	0.00	425.00	0.00	
	Other Purchased Services (Total)	0.00	5,325.00	0.00	5,325.00
600	610 General Supplies	0.00	39.85	0.00	
	640 Books and Periodicals	0.00	75.00	0.00	
	652 Technology Related Supplies	13,500.00	0.00	0.00	
	660 Instructional Kits	0.00	0.00	0.00	
	651 Software	1,120.00	0.00	0.00	
	Other	0.00	0.00	0.00	
	Supplies (Total)	14,620.00	114.85	0.00	14,734.85
800	810 Dues and Fees	0.00	500.00	0.00	
	Other	0.00	0.00	0.00	
	Other Objects (Total)	0.00	500.00	0.00	500.00
Subtotal 100 - 600 & 800		14,620.00	57,950.25	0.00	72,570.25
Indirect Costs	4.24% x Subtotal				3,076.98
700	730 Equipment: over $5,000 each	0.00	0.00	0.00	
	Other	0.00	0.00	0.00	
	Property (Total)	0.00	0.00	0.00	0.00
TOTAL		14,620.00	57,950.25	0.00	75,647.23

The object codes reflected on this budget are the new codes issued by the state for the account number conversion.

Signature: Sue Chambers
District Superintendent or Authorized Signature

8/9/10
Date

APPROVED
NEVADA DEPARTMENT OF EDUCATION
DEPARTMENT USE ONLY
SEP 2 2010
EDUCATIONAL TECHNOLOGY CONSULTANT

Initial

9/2/10
Date Reviewed

FP-01
02/08

BUDGET EXPENDITURE SUMMARY
Enhancing Education Through Technology Title II-D

Amended Budget 6/29/2010

SCHOOL DISTRICT Churchill County PROJECT NUMBER
Humboldt, Nye, Pershing, Lander,
Storey, Mineral County Consortium FISCAL YEAR 10-11

CHECK ONE: BUDGET X AMENDMENT X FINAL REPORT

OBJECT	DESCRIPTION	DIRECT INSTRUCTION	INSTRUCTION SUPPORT	ADMIN SUPPORT	TOTALS
100 & 200	Salaries & Benefits	0.00	46,727.80	0.00	46,727.80
300	Purchased Professional Services	0.00	11,700.00	0.00	11,700.00
400	Purchased Property Services	0.00	0.00	0.00	0.00
500	580 Staff Travel	0.00	13,720.00	0.00	
	Other	0.00	425.00	0.00	
	Other Purchased Services (Total)	0.00	14,145.00	0.00	14,145.00
600	610 General Supplies	0.00	166.9	0.00	
	640 Books and Periodicals	0.00	200.00	0.00	
	652 Technology Related Supplies	39,150.00	0.00	0.00	
	660 Instructional Kits	0.00	0.00	0.00	
	651 Software	1,120.00	0.00	0.00	
	Other	0.00	0.00	0.00	
	Supplies (Total)	40,270.00	366.90	0.00	40,636.90
800	810 Dues and Fees	0.00	500.00	0.00	
	Other	0.00	0.00	0.00	
	Other Objects (Total)	0.00	500.00	0.00	500.00
Subtotal 100 - 600 & 800		40,270.00	73,439.70	0.00	113,709.70
Indirect Costs	4.24% x Subtotal				4,821.29
700	730 Equipment: over $5,000 each	0.00	0.00	0.00	
	Other	0.00	0.00	0.00	
	Property (Total)	0.00	0.00	0.00	0.00
TOTAL		40,270.00	73,439.70	0.00	118,530.99

The object codes reflected on this budget are the new codes issued by the state for the account number conversion.

Signature: _____ _____
District Superintendent or Authorized Signature Date

FP-01
02/08

Churchill County School District
Federal Programs
255 E. Stillwater Avenue
Fallon, Nevada 89406
(775) 423-6955 Fax: (775) 423-8041

June 6, 2011

Dr. Kim Vidoni
Nevada Department of Education
700 E. Fifth Street
Carson City, NV 89701

Ref: EETT Grant Consortium
Project # 11-765-01000

Dear Dr. Vidoni:

Enclosed please find the EETT, Title II D budget revision. The amounts are staying the same we have just moved money between the different object codes. We did not end up using the $2,000 for substitutes and would like to move the money into the travel. The cost for the attendees to attend the ISTE Conference has been more than originally budgeted. Also, we have updated the estimated cost for technology items with actual costs of these items. We have removed the $200 for books and periodicals and put it into general supplies and computer supplies. We have removed tech day meeting under the purchases professional services $700 and put some into software and some into technology supplies.

Your consideration and approval of this budget revision is appreciated. Please feel free to contact me if you have any questions. Thank you.

Sincerely,

April Holman
Federal Programs Secretary
holmana@churchill.k12.nv.us

Enclosure

INSTRUCTORS:

2010 Information

Michelle Richardson is a certified Integrating Technology Trainer, a certified eMINTS trainer and a licensed classroom teacher for the Churchill County School District. Jeanne Moline is also a certified Integrating Technology Trainer, certified eMINTS Trainer and a licensed classroom teacher for Pershing County School District. Michelle conducted the Webinar on line trainings and the Saturday classroom trainings in Fallon, served as tech support for all participants and is the coordinator for the grant. Jeanne conducted the Saturday classroom trainings for those participants from Humboldt, Lander and Pershing County School Districts who chose to attend in Humboldt rather than travel to Fallon and served as the tech support for those three districts.

2011 Information

Michelle Richardson was the only trainer this year. She conducted classes through the illuminate web site which is interactive training software that allows the instructor to interact verbally, by chat box and by whiteboard and power point presentations. The participants either logged on individually or in groups at their home site. The instructor could monitor the participant's activity and assign groups for them to work with even while they were at their own sites. Due to the grant funding and the goals of this year's grant no Saturday at site classes were conducted. As the participant list shows teachers from all the consortium districts participated again this year.

PARTICIPANTS:

At the end of the year in 2010 four of the original participants did not continue this year due to retirements, reduction in force, promotion or resignations. Katie Floyd replaces Jennifer Tsu-Jones at Floyd Elementary, Natalie Wall replaces Stephanie Keuhey at Mineral Elementary, Patrick Beckwith replaces Mark VanVoorst at Virginia City High and Juli Dolan replaces Shari Shirley at Pershing High. Pershing did not have someone who wanted to participate. One teacher, Coleen Meihack did not continue after the first two classes due to medical reasons.

Participant	School	Grade	District
Angie Heck	EC Best Elem	6th	Churchill
Barb Burton	Virginia City High School	9-12th	Storey
Brenda Boone	Lahontan Elem	6th	Churchill
Cherise Averett	Battle Mountan Elem	9-12th	Lander
Coleen Meihack	EC Best Elem	6th	Churchill
Crystal Farinella	Hafen Elem	1st	Nye
Dawn Lucas	Grass Valley Elem	4th	Humboldt
Denise Barton	Grass Valley Elem	3rd	Humboldt
Jennifer Fecht	Pershing Elem	1st	Pershing
Lisa Conn	Sonoma Heights Elem	3rd	Humboldt

Lori Metscher	Mt Charleston Elem	2nd & 3rd SPED	Nye
Elsa Spence	Mary S Black Elem	2nd	Lander
Mary Jo Gemelke	Hawthorne Elem El	4th	Mineral
Sheila Windholz	JG Johnson Elem	5th	Nye
Susan Weikel	Lahontan Elem	6th	Churchill
Tammy Baltutat	Floyd Elem	5th	Nye
Tiffany Allyn	NUMA Elem	6th	Churchill
Victoria Purrell	NUMA Elem	6th	Churchill
Kim Parks	Sonoma Heights Elem	4th	Humboldt
Dana Montes	Pershing High School	2nd	Pershing
Sandra Olsen	Mary S Black Elem	2nd	Lander

NEW PARTICIPANTS

Katie Floyd	Floyd elementary	5th	Nye
Natalie Wall	Hawthorne Elementary	4th	Mineral
Patrick Beckwith	Virginia City High School	9-12	Storey
Julie Dolan	NUMA elementary	3rd	Churchill

INTEGRATING TECHNOLOGY TRAINING SCHEDULE:

The following is a list of the classes, dates and topics being presented in the Webinar setting. Webinar classes are on line trainings that are conducted in Fallon and the participants sign on at their own district site in groups or individually to facilitate working together. A laptop computer is used with a camera and microphone that facilitates live video and audio participation. The instructor verbally provides instruction and power point visual instruction. Participants can use a chat window to discuss or can discuss through audio by signaling the instructor through symbols on the computer.

Integrating Technology Schedule
2010-2011 Tuesdays- 3:30-6:00 p.m.

	Date	Topic	Assignment
1	September 7, 2010	Learning with Technology	Write a Technology Use Goal Statement. Choose 5 lessons to enhance with technology.
2	September 21, 2010	Preparing students for the 21st century	Find out if you have access to a computer lab/cart. Find some interactive websites to use & share.
3	November 16, 2010 (rescheduled for May)	Troubleshooting (Independent Study)	Develop a list of tips & tricks to guide you and/or your students through troubleshooting.

4	November 30, 2010	Planning a class website	Develop a storyboard and research "what is good web design?" to help you as you develop your website.
5	December 7, 2010	Creating a class website	Create and maintain a class website. Provide the address.
6	January 11, 2011	Questioning Strategies	Develop a list of higher-level questions to use in a classroom activity. Then, add student generated questions to your list.
7	January 25, 2011	WebQuests	Find and use a WebQuest that is appropriate for your class.
8	February 8, 2011	Classroom Management & Websites Revisited	Use one of the tools from training in your classroom and include a reflection about how it went.
9	March 1, 2011	Smart Ideas (Graphic Organizers)	Create a Smart Ideas template for classroom use that supports higher-level thinking.
10	March 15, 2011	Assessing Student Technology Products	Create an assessment to use in your classroom.
11	April 5, 2011	Interdisciplinary Teaching	Describe an interdisciplinary problem-based lesson or unit appropriate for the grade level taught, that meets curriculum standards and addresses appropriate student use of technology based on the NETS-S.
12	May 3, 2011	File Management	Organize your files and complete a reflection about your organization techniques.
13	May 17, 2011	Troubleshooting Make-up session Review of 2 years with small group discussions then whole group talk.	Reflect on how your year went as you integrated more technology into your curriculum and what you have gained from our training.

*Each session is 2.5 hours X 12 regular sessions for a total of 30 hours which equals 2 in-service credits. The last session is a make-up for those who missed a session to make-up lost time and still earn full credit. Each portfolio assignment must be completed with the training session in order for the participant to earn credit.

PARTICIPANTS CLASS REQUIREMENTS:

All participants were to attend and participate in the twelve on line Webinars. Throughout the training participants were to show evidence of their knowledge and skills developed through the class by submitting or demonstrating their utilization of the learning by providing lesson plans or show evidence of the participant integrating technology in their classroom, submit an electronic portfolio containing all of the assignments that correspond with each of the training sessions, submit comments on the training blog, develop their own class blog, develop lessons using on line interactive programs such as web quest and submit a one page reflection at the conclusion of each training with an end of the year reflection of the events of the year. Participants could demonstrate their skills by being a presenter of a topic learned during the class during the Churchill County School District Technology In-service Day. Participants also were allowed to obtain Nevada in-service credit of .5 to 2 credits for the class depending upon the number of hours attending or participating. They could receive .5 credits for each 7.5 hours of participation.

CLASS REQUIREMENT RESULTS:

Participation attendance for the 12 Webinar sessions was 80.6% for both first semester and second semester. Attendance for the seven classes through March was 86.3% and for the remaining 4 classes was 70.8% showing a drop off due to the situations affecting each district at the end of the year. Nineteen teachers or 79.1% completed the requirements for the class and received the incentive technology. Twelve Smart Responders, five document cameras and two Permethion active responders were provided as incentives. For the 11 classes the average attendance was 19. For the first 7 classes the average attendance was 21 per class. Twelve of the participants accepted the invitation to attend the ISTE Conference in Philadelphia June 26th through the 29th in an attempt to further their knowledge of using technology in the classroom.

PERCEPTION SURVEY RESULTS:

The perception surveys for teachers and students were developed to produce statements as to how technology is used, what it is used for in the classroom, and how it is used now compared to how it is used after exposure to the classes and presence of the technology. The last part of the teacher survey is designed to give a rating on how they perceived student knowledge, skills and behavior has changed by the class and use of technology. The scale is 1 to 5 with 1 being the lowest score and 5 being the highest score. The principal/supervisor survey was designed for the person to rate the questions asked on a scale of 1 to 5 with 1 being the lowest score and 5 being the highest score. We have reviewed the surveys and have provided selected comments from teachers for pertinent questions. We have provided charts showing the rating of each question that was rated.

Teachers were asked to rate the following questions in relation to the performance of their students. The average rating scores are listed in parenthesis behind that question.

On a scale of 1 to 5 with 1 being the lowest and 5 being the highest rate the following questions.

1. My integrating of technology in the classroom has increased due to my participation in this class. 1--------5 **(4.8)**
2. The use of integrating technology in my classroom has increased student:
   Achievement. 1--------5 **(4.5)**
   Classroom engagement. 1--------5 **(4.7)**
   Use of technology to research questions. 1--------5 **(4.2)**
   Knowledge of communication through technology. 1--------5 **(4.0)**
   Use of technology to produce academic projects. 1--------5 **(4.5)**
   Higher order thinking skills. 1--------5 **(4.4)**

Principal/Supervisors were asked to rate the following questions in relation to teacher behaviors. The average rating scores are listed in parenthesis behind that question.

On a scale of 1 to 5 with 1 being the lowest and 5 being the highest rate each of the following questions.

1. From your observations, how often did ITP teachers use technology (Smart Board) in their lessons this year? 1----5 **(4.5)**
2. From your observations, Smart Board lessons by ITP teachers are *interactively* engaging students. 1----5 **(4.08)**
3. From your observations, ITP teachers have used inquiry-based lessons incorporating the use of technology. 1----5 **(3.58)**
4. From your observations, ITP teachers use technology as a communication tool in their classroom. 1----5 **(4.0)**
5. From your observations, ITP teachers have encouraged their students to use technology as a communication tool such as email or blogs. 1---5 **(2.58)**
6. ITP teachers have shared their learning and excitement with you about integrating technology in their classroom lessons. 1----5 **(4.25)**
7. ITP teachers have invited you to observe a Smart Board lesson in their classroom. 1--5 **(3.58)**
8. The Integrating Technology Project has impacted ITP teachers' teaching and the learning of students in their classroom. 1----5 **(4.33)**

Rate the following questions based on <u>your</u> perceptions and <u>your</u> observations. On a scale of 1 to 5 with 1 being the lowest and 5 being the highest rate the following questions.

The integrating of technology in the classroom has increased due to participation in this class.1-5 **(4.41)**
The use of integrating technology in the classroom has increased student:
Achievement. 1-----5 **(3.5)**
Classroom engagement. 1--------5 **(3.91)**
Use of technology to research questions. 1--------5 **(3.66)**
Knowledge of communication through technology. 1--------5 **(3.75)**
Use of technology to produce academic projects. 1--------5 **(3.75)**
Higher order thinking skills. 1--------5 **(3.83)**

TEACHER SURVEY COMMENTS:

A summary or the actual teacher responses from questions asked on the teacher survey. Actual teacher responses are in parenthesis.

1. How often do you use technology (Smart Board) in your lessons now after participating in this class?
   a. **All responses were "everyday" to "daily" and most referred to almost every lesson to every lesson.**
2. How many of your Smart Board lessons are *interactively* engaging students? Which lesson is most engaging? 1-5,6-10, 10-20, 20+
   a. **Most were"20 +" and two said "every lesson is engaging" and "the use of the smart board makes it easier to engage students – they love to use the technology."**
3. How many inquiry-based lessons incorporate the use of technology? 1-5, 6-10, 10-20, 20+
   a. Upper elementary teachers used inquiry based lesson with the technology more so than the lower elementary level due to their ability to use the board. Web quest was mentioned as inquiry based and was used often.
4. How do you use technology as a communication tool in your classroom?
   a. **Some used it for classroom information, some used email between students, and some have web sites for parents to access and to email the teacher. Most depended upon the number of computers the students have access to and how firm the filter for the district is. Some used the web quest, blogs and webpages to help students know the ways to communicate with technology.**
5. How has technology influenced your instructional decisions?
   a. "**Technology provides so many ways that I can present information to my class. I have to make decisions on what software would best accomplish my instructional goal". "It has enhanced my lessons and made them much more interactive". All responses had this same theme**.
6. How do you use presentation software in your classroom?
   a. **Responses were power point, web quest, assignments, lesson objectives, notebook on the smart board, students create their own presentations and students participate in correcting work on the board.**
7. How has technology impacted your teaching and the learning of students in your classroom?
   a. "**Technology has made learning more interesting in my classroom." "The students really enjoy using the SMART Board and they will accept many new challenges when it is presented on the Smart Board."**
8. Have you ever designed a lesson plan integrating technology?
   a. "**All of my lessons integrate technology but I do not specifically state that in my lesson plans."**
9. Have you used web based lessons?
   a. **"I have with web quest and virtual scavenger hunts." "No we have had technology limitations online." "I have used several web based lessons."**
10. Have you used web quest as an instructional tool?
    a. "My first grade class did several web quests. The one we did on Bees was very successful." "No I have not at this level." Half of the teachers use web quest and others do not because they have limitations on online services or use another tool.

TEACHER REFLECTION COMMENTS:

Selected Teacher Comments from their end of the year reflection assignment.

Participants were asked to reflect on a statement from the teacher after each class related to the learning presented during that class. They were also asked to provide an end of the year reflection. The instructor answered those end of the year reflections with her response to them. In the appendix is the instructor's comments, one teacher's reflection as an example and copies of the lesson reflection questions.

EVALUATOR STATEMENT:

In conducting the review of the grant I used the following materials to focus and guide my evaluation procedures and conclusions. I developed a rubric using the Level 3 of the Enhancing Education Through Technology-FY08/09 Competitive Grant Application Scoring Rubric. (Document listed in appendix) I used the grant Goal Statements, the Evaluation Plan, Participant Requirements and the Milestones to Document Progress in the Strategies/Activities Worksheet developed by the grant writers and submitted as a required portion of the grant application. I have communicated extensively with the IT Instructor, Michelle Richardson, the Federal Programs Director of Churchill, Sue Chambers, visited with participants during site visitations and reviewed each of the Webinars classes. Mrs. Richards and I traveled to Hawthorne to visit the two Mineral teachers and observed them using the Smart Board during a lesson. I observed teachers at Grass Valley Elementary, Pershing Elementary, Lahontan Elementary, NUMA Elementary and E. C. Best Elementary. I also observed 4 teachers from the class presenting during the Churchill School District Technology Day. Mrs. Richardson has provided me with her reflections to each participant for their electronic portfolio, their lesson plan evaluations, their attendance logs and the power point presentations for each of the Webinar sessions. We have obtained perception surveys from teachers and principal/supervisors. Mrs. Richardson has done an excellent job of documenting all her activities and the activities of each of the participants. She has provided excellent feedback to each participant.

EETT Rubric:

I will not address every area of the rubric but only those areas that directly reflect an evaluation of the grant outcomes.

Needs Assessment – although this may not directly reflect an evaluation component I thought the needs assessment clearly outlined the grant focus and the reason for applying training in this fashion.

Strategies/Activities Worksheet – after the reduction of the amount of money available for the grant the worksheet changed considerable as the area of technical support through a help desk and the development of websites was removed. Although the number of IWB systems was reduced by 35 and the instructor reduced to one with on line webinars the goals of the staff development and student's 21st Century Skills did not change.

Professional Development Plan – The plan is very clear as to how, when, by whom and what the requirements of the participants will be. The plan was carried out as described in the grant.

21st Century Learning – During the first year although the project describes the skills, the instructor presented the skills in classes and teachers were to implement those skills in their lessons as interactive learning I am not sure it is clear what those skills look like as student behaviors in a classroom. During the second year of the project the skills were identified and just implemented through teacher and student participation in the interactive lessons. Student participation and teachers use of the technology every day and in most cases in every lesson allows those skills to become second nature and clearly understood. Without an assessment or test of 21st Century Skills for each student in every class of the participants we cannot academically assess the understanding of the skills, we can though make assumptions through the knowledge of teacher use of the technology, written lesson plans, participation and understanding during classes, observations by administrator/supervisor and teacher comments that those skills are being taught.

Grant Goals:

Goal #1
Teachers will receive interactive white board technology systems during the 2009-2010 school year with support and professional development during 2009-2011 in order to increase their knowledge of and use of student centered instruction.

Under Goal #1 the objective was to improve student 21st Century skills by focusing on student centered instruction using integrated technology by 100% of the teachers as evidenced in lesson plan design and implementation. The grant met this goal by providing exceptional instruction as outlined by the management plan and professional development plan. 100% of the teachers participated and completed the year as participants. Although the attendance rate was not 100% and completion rate for all work turned in was 79% (5 teachers have not turned in everything at this date) 100% of the teachers participated throughout the instructional period, were providing integrated technology instruction in their lessons and were utilizing the IWB system and lesson designs as asked.

Goal #2
Students will increase their 21st Century skills by receiving student centered instruction using integrated technology (ISTE National Educational Technology Standards for students)

Under Goal #2 the objective was to improve student 21st Century skills by focusing on student centered instruction using integrated technology by 100% of the teachers as evidenced in lesson plan design and implementation. Records and surveys show that 100% of the teachers were focusing on student centered instruction using integrated technology which was evidenced in their lesson plans. During the second year much of the work was practice and instruction for class blogs and interactive web systems like web quest.

Milestones to Document Progress toward Goals:

Goal #1 Milestones

Teachers will

Complete all required professional development sessions.
Access online Webinars.
Complete required lesson plans and video.

Goal #2 Milestones

Lesson plans as submitted by teachers will allow the 21st Century Skills to be developed by students.
100% of the teachers will submit plans showing skill development.
Some teachers in order to receive the incentives in the second year will provide online lesson plans and tutorials.

The milestones were monitored by the IT Instructor as the class proceeded and teachers met those requirements. Nineteen of the teachers (79%) completed the requirements to receive the incentive systems. Ten attended at least 15 hours of class to receive 1 in-service credit, 11 attended at least 23 hours of class time to receive 1.5 in-service credits and 2 attended 30 hours for 2 in-service credits.

Participant Requirements:

Teacher submitted reflections after each session and at the end of the school year.
Teacher portfolio including lessons integrating technology to be submitted at the completion of the school year.
(One video lesson showing the technology use in the classroom with feedback provided from the trainer and evaluator.) First year only.
Surveys completed by teachers and principal to analyze the change in their skill and behavior through the use of technology integration.
Teacher completion of the training.
Year 2 principal visitation and/or site visitation.

All of the above requirements were met by the participants and are reported in this document. Attendance at the Webinar sessions were not a concern as it was clear that participants were conducting lessons with integrated technology and were providing evidence of such instruction by lesson plans, discussions and completed written class responses. (The non-completion of turning the required information in at the end of the year considering the events in all school districts at the end of the year with RIF and staff reductions announcements can be understood. Some participants did not know their assignments for next year let alone if they would be returning to employment at all.)
The above statement was made at the end of the first year project but occurred again this year. Teachers again were not certain of their position which added stress in completing out of school day

projects. In observing classrooms and the instruction with technology I noted that the stress they felt did not seem to be carried over to the actual instruction.

Evaluation Plan:

The evaluation component will be for the assessment of:
The web as a professional development tool
Webinars as professional development
Change in teacher knowledge of use of lessons based on 21st Century Skills
Change in teacher skill with use of interactive technology
Change in teacher behavior by use of the integrated interactive technology
Student improved engagement through perception surveys
Administrator survey based on classroom observation of lessons, interactive technology and student engagement
Teacher completion of the training (95%)

In observing the Webinar sessions and reviewing the teacher surveys I would assess that Webinar use especially in rural areas is a very effective use of professional development. The method used was extremely user friendly allowing for participant participation by video, chat window, visually, and verbally. The instructor required each participant to provide a brief reflection of each session to check for understanding and to provide for accountability of attendance. The participants were able to participate in groups allowing the sharing of ideas and knowledge. The surveys were very positive in the perception that on line professional development as presented was very useful and productive.

By reviewing the reflections and surveys it was very evident that knowledge of technology and 21st Century Skills was improved in those participants. They acquired new knowledge.

The lesson plans and discussions during the Webinar sessions clearly showed that skill development of the participants was evidenced by their practice and review of new knowledge. The surveys showed that they not only showed knowledge development they had developed the skills and could identify those skills.

Evidence of a change in behaviors was provided by the administrator surveys, the review of the end of year reflections and site visits of selected teachers. Principals rated that the IT Project has impacted the participating teachers teaching and student learning in their classroom as a 4.3 with 5 as highest and 1 as lowest. They rated interactively engaging students as a 4.0, use of inquiry based lessons as a 3.5, invited the principal to view a Smart Board lesson as a 3.5, integrating technology lessons has increased due to class as a 4.4, student achievement has increased as a 3.5, student engagement has increased as a 3.9 and higher order thinking skills has increased as a 3.8. This survey data reflects the perception that involvement in the class and use of integrating technology in the classroom has impacted the participant's behaviors. Student engagement in the classroom due to integrating technology in lessons has increased pointed out by the teacher survey (4.8) and by the principal survey (3.9).

As stated previously the 95% teacher completion of the training was not obtained but it is clear by the instructor's written response and end of year report that teachers were implementing the concepts presented and were responding with knowledge and understanding of the effectiveness of using technology in the classroom. Teacher survey responses were very positive rating over 4 to each question but were higher in two specific areas. They rated that their integrating of technology in the classroom has increased due to participation in this class as a 4.8 and that classroom engagement has increased due to their integrating technology rated as 4.7.

In Conclusion the districts participating in the Enhanced Education Through Technology Subgrant through the direction of the Churchill County School District did follow the requirements of the grant in providing professional development opportunities and the supporting equipment for classroom use in establishing integration of interactive technology in the classroom. It was clear by the perception surveys of the participants and the principals/supervisors that they felt the integration of technology in class lessons and instruction has an effect and can create increased classroom engagement, increased academic achievement and increase student's higher order thinking skills. Furthermore the perception surveys showed that teacher's participation in this class did change their behavior in the implementation of integrated technology in their classrooms. The method of delivery of professional development through Webinars and communication by email can be an effective tool when addressing the needs of rural districts that are far from a larger district or community with a higher education opportunity.

Michelle Richardson

Final Reflection Notes

June 8, 2010

What a year! We weren't sure the funding would come in for our project and when it did, the technology trainer position was reduced along with the rest of our funds. We weren't able to setup a website with tutorials and a help desk as we wanted. We purchased Elluminate in October and the training got underway in November. There have been many lessons I've learned along the way, and just because you can't see teachers doesn't mean they aren't misbehaving on the other end of the computer.

I learned from using Elluminate one feature that is sometimes hard to work with is the chat window. Because some participants have trouble with their microphones, they are forced to type in their comments. This is ok unless they get off topic, which happens from time to time. I did turn off the chat feature periodically but need to figure out a way to use it more effectively next year. Each session had different highs and lows, and it's really very difficult to manage teachers who are 341 miles away. It was hard to troubleshoot through some of the technical difficulties. This is why it's important for them to have tech support available to them.

At the start of our training sessions, I would work the portfolio assignments into the training as much as possible. Some teachers fell behind on the requirements and despite my warning; they were still turning in assignments today when they were due May 25th. I guess I should be happy I received anything! Another idea from Gary was to have participants complete reflections right after the training session. This helped a lot with guiding me to understanding where the participants were coming from and comment back to them about their questions, concerns, and ideas.

I had a wonderful group of teachers to work with this year. I feel that they truly did the best they could with our limited amount of resources. I'm glad the 7 districts took this seriously and provided me with their best teachers. I've loved working with each of them and have grown very fond of my group. I will miss the teachers who will be gone next year, but look forward to the challenge of getting new teachers up to speed with our project next year. I am really excited about building class websites and working on more student integration now that the teachers have the foundation to build on.

Michelle Richardson

Reflection Notes

June 9, 2011

What another exciting, fun year! We kept 21 of the same teachers from last year, and added 4 new teachers (Dolan, Floyd, Wall, and Beckwith-admin.) to the mix. It was difficult to merge the two groups together, so I had two training sessions with the newbies to familiarize them with how our project works. I never quite felt that I had the same connection with these teachers. I think part of this was because I had developed a relationship with my year two (veteran) teachers through having them come to Churchill for face-to-face training. I felt like I did develop some connection with Dolan and Wall because they both came to live Smart Board training, but I never quite connected with Floyd and Beckwith. I think there is something to be said about live training and seeing someone face-to-face and become familiar with their actions and mannerisms. We will take this into consideration as we move forward with other projects.

Another challenge I faced this year was with creating teacher websites. I thought it would be easy to teach them to use a web-based application like Weebly to create their sites. I was wrong. As with any web-based application, Weebly wouldn't work in some districts on some days or it was blocked by the tech department. Other teachers have specific software they are supposed to use to create a website, like in Churchill we use School Center. It pretty much turned out that I taught them design tips, and we discussed the dos and don'ts of web design, and they are going to have to go with what their district has in place for them to use.

We had to reschedule a couple of our training sessions, so I created a Troubleshooting Independent Study session that the teachers could watch whenever they had time. Most didn't do the training or the activities that went with the session. Unless we are scheduled to meet at a certain time, the teachers aren't able to work on their own. I really had trouble getting them to complete their reflections in a timely manner also. In the next technology project I do, I am going to require a reflection immediately following the session as part of the training exit ticket. I'm also going to be doing class visits to ensure the transfer of material.

The distance was an obstacle we had to overcome, and I think Elluminate was a great tool for us to use. I wish I could have visited more districts, but I know all of the teachers have been using the technology. Almost every single teacher has told that the technology has made a positive impact on their teaching and the learning in their classrooms in numerous ways. They are grateful for the opportunity to collaborate outside their districts and share with other educators. I appreciate this opportunity, and I truly could not have picked a better group of teachers myself. I've really enjoyed getting to know each teacher on a personal and professional level. I think of them often if I see a website that goes with what they have taught, and I told them I will continue to send them resources that I think they'll be able to use. What an amazing experience!

Addendums

Department of Education Grant Approval 2009-2010
Department of Education Grant Approval 2010-2011
Integrated Trainer Certification
Enhancing Education Through Technology Developed Rubric
SMART Board Application
Teacher Introduction Letter
Integrating Technology Reflection Samples
SMART Board Lesson Rubric
Portfolio Requirements
Principal/Supervisor Survey
Teacher Survey
Teacher Survey Results
Principal/Supervisor Survey Results
Teacher & Instructor Reflection Comments
Sample Teacher Final Reflection

KEITH W. RHEAULT
Superintendent of Public Instruction

GLORIA P. DOPF
Deputy Superintendent
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Deputy Superintendent
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1749 Moody Street, Suite 40
Carson City, Nevada 89706-2543

280-765

October 6, 2009

Carolyn Ross, Superintendent
Churchill County School District
545 East Richards St.
Fallon, NV 89406

RE: Enhancing Education Through Technology
Project 10-765-01000

Dear Mrs. Ross:

This letter is to inform you the Churchill County School District's Conditions of Grant Award have been met. Enclosed is a copy of the District's approved application, Request for Funds forms, and Notification of Federal Subgrant Award for the award period of 7/1/09 – 6/30/10. The project number is 10-765-01000.

Please feel free to contact me at (775) 687-9131 or kvidoni@doe.nv.gov if you have any questions or I can be of assistance.

Sincerely,

Kim Vidoni
Education Technology Consultant
Nevada Department of Education

Cc: Sue Chambers

Encl.

KV/cab

KEITH W. RHEAULT
Superintendent of Public Instruction

GLORIA P. DOPF
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September 2, 2010

Dr. Carolyn Ross, Superintendent
Churchill County School District
545 E Richards St.
Fallon, NV 89406

RE: Enhancing Education Through Technology Competitive Consortium
Budget Amendment #1
Project 11-765-01000

Dear Dr. Ross:

This letter is to inform you the Churchill County School District's budget amendment dated August 9, 2010 has been approved. Enclosed is a copy of the District's approved budget for the award period of 7/1/10 – 6/30/11.

Please feel free to contact me at (775) 687-9131 or kvidoni@doe.nv.gov if you have any questions or I can be of assistance.

Sincerely,

Cristina A. Boland for

Kim Vidoni
Education Technology Consultant
Nevada Department of Education

Cc: Sue Chambers

Encl.

KV/cab

SMART Certified Trainer
SMART Notebook 10 software
for Windows® operating systems

SMART Technologies Inc
3636 Research Road N.W.
Calgary, AB T2L-1Y1
CANADA

To whom it may concern,

This letter is to acknowledge Michelle Richardson as a SMART Certified Trainer on the **SMART Board Software Version 10 for Windows Operating Systems**.

The SMART Certified Trainer designation indicates that SMART Technologies Inc. recognizes the certified individual as a qualified trainer for SMART Board™ interactive whiteboards, software version 10. SMART Certified Trainers have completed a rigorous training program that tests both their technical aptitude and ability to train others.

What is a SMART Certified Trainer?

Being a SMART Certified Trainer is your assurance that candidates have invested the time to learn how to deliver a high-quality training session. Certified Trainers are authorized to deliver carefully designed training programs that have been tested in hundreds of sessions by SMART's Training Services department. Choosing a SMART Certified Trainer ensures your attendees will get information that is immediately applicable to the jobs they do.

The following topics are included in the full-day workshop:

- Hardware and basic functionality
- Working with applications: Microsoft® Word, Excel and PowerPoint®
- Using SMART Notebook software - including advanced handwriting, grouping, print capture and attachments
- SMART Recorder
- Video Player
- Control Panel
- Other training resources

What Are the Criteria?

Pre-certification

All Certification Trainers have completed pre-certification requirements to ensure they have the skills to train others. These requirements have four main components:

- Receiving instructions on how to use SMART's extensive online training materials
- Attending an online learning session and completing various learning objectives
- Submitting a pre-certification assignment to SMART's Certification Trainer
- Attending a SMART Training event or session

During the Session

At the certification workshop, candidates practice delivering training material to ensure consistent and accurate information is provided during their sessions. There are two types of training materials provided during the workshop:

- A *SMART Session Facilitator's Guide* that outlines best practices on how to use the SMART Board interactive whiteboard
- A resource CD-ROM with presentation files and examples to supplement their training

Post-certification
The certification process does not end after the workshop.

- Certified Trainers are required to submit a sample of their training to SMART's Senior Certification Trainer for final evaluation
- Certified Trainers must also submit monthly reports containing the number of sessions and quality of the sessions – as determined by the Learner Feedback Form

SMART Certified Trainer

A SMART Certified Trainer is qualified to deliver a full-day Session. This individual has received three full days of training from SMART including hands-on activities, and personalized feedback from a SMART Technologies Certification Trainer. The post-session evaluation of a Trainer involves conferencing to ensure that the quality of the content and presentation meet the certification requirements.

SMART Certified Trainer Listing

A list of all current SMART Certified Trainers can be found on our website at:
http://www.smarttech.com/trainingcenter/masters/certifiedTrainers.asp

This listing of register trainers is your assurance that they have completed all of the certification requirements and received final approval from SMART Technologies.

(Note: If individuals are not listed on our website, they have not yet completed the certification process and are not certified to deliver training.)

If you have any questions regarding certification, contact SMART Training Services at 1.888.42.SMART, ext. 8536, or e-mail certification@smarttech.com.

Sincerely,

SMART Technologies Inc.

Darlene Hampson
Team Lead Training Specialists

Enhanced Education through Technology – FY08/09 Grant Application Rubric

Needs Assessment

1. States the problem, identifies the factors contributing to the problem, supports the problem with proper cited research. ☐
2. Defines consequences of not dealing with the problem. ☐
3. Describes how the project addresses Federal and State goals and how it aligns with district improvement, district technology and or state technology plans. ☐

Strategies/Activities Worksheet

1. Outcomes address the problem identified in the needs assessment and are established for each of the groups identified in the needs assessment. ☐
2. Goals, objectives and milestones are clearly stated and measurable and are ambitious and realistic. ☐
3. Goals have deadlines that extend beyond the project period. ☐
4. Objectives relate to goals and to student achievement. ☐
5. Strategies address outcomes, are supported by clearly stated rationale or properly cited research. ☐
6. Activities provide direct service to parents, teachers and or students and relate to the strategy. ☐
7. Milestone deadlines are set periodically during the year and gauge progress toward accomplishment of the goals and objectives. ☐

Professional Development Plan

1. Provides a detailed description of the process for administering professional development. ☐
2. Is linked to project activities and support project goals and objectives. ☐
3. Includes dates and types of professional development to be performed. ☐
4. Includes specific, ongoing professional development activities that are adequate to achieve staff development goals for the project. ☐

Evaluation and Dissemination Plan

1. Includes an evaluation plan that will be used by the evaluator. ☐
2. Indicates who will be the evaluator. ☐
3. Includes a discussion on how information from the final evaluation report will be disseminated. ☐
4. Includes a statement that ensures compliance with all state and federal reporting requirements. ☐

Management Plan Worksheet

1. Lists all key personnel and/or external contracted services with descriptions of their duties and percentages of time dedicated to the project. ☐
2. Identifies a project director and an appropriate percentage of time dedicated to the project. ☐
3. Lists all major management actions, assigns responsibility for each action, assigns dates for each action, and is adequate for making good progress toward accomplishing the goals and objectives of the grant. ☐

Project Timeline

1. Presented in the form of a Gantt chart. ☐
2. Contains key elements: implementation, management and evaluation. ☐
3. Is reasonable and not overly ambitions. ☐

Budget Worksheet and Narrative

1. Contains all costs described in the application. ☐
2. Explains cost estimations. ☐
3. 25% is set aside for PD ☐
4. Line items are detailed and specific. ☐
5. Budget Summary page is equal to total of supplemental pages. ☐
6. All items are justifiable and there is no evident of "budget padding". ☐

Systematic Consultation

1. A description of procedures for involving public, charter, and private schools in planning, implementing and evaluating the project. ☐
2. Consultation was timely and meaningful. ☐
3. Initial consultation was followed-up with additional inquiry. ☐

21st Century Learning

1. Integrates technology into classrooms in innovative ways that promote 21st century learning. ☐
2. Promotes systemic change within the schools or districts involved. ☐
3. Provides evidence of 21st century student outcomes and support systems. ☐

Partnership

1. The project is a partnership between two or more entities ☐

Page Limits

1. The application adheres to page limit requirements. ☐

SMART Board Application

District

School

Name

E-mail

Grade Level_____ Phone Number_____

As new technology is introduced and expanded, it is critical that we ensure its maximum use. Federal funds are being allocated for this technology and the accountability is high in order to sustain support. To aid in the selection process, we have created an application that includes requirements and expectations in order to receive such technology. Please complete this form and the required narrative in its entirety to be considered for receiving the new technology.

In an attached narrative, explain: 1) why you are applying for the SMART Board, 2) ideas you have for maximizing its use within your classroom, 3) your willingness to attend a minimum of 30 hours of training and four Saturday sessions, and 4) your commitment to demonstrate to others the uses of SMART Boards in your current setting.

I understand that all technologies purchased by the EETT Grant belong to the classroom in which they are installed and will not be moved to other classrooms or schools. It is the teacher's responsibility to meet all the requirements of the grant in order to keep the equipment.

Teacher Signature

Principal Signature

Integrating Technology

Michelle Richardson
Technology Program Facilitator
775.423.6955

October 20, 2009

Dear Integrating Technology Teacher:

I would like to provide you with the information necessary for you to decide if you would like to participate in the two year Integrating Technology (IT) Professional Development Training. The training will help you effectively integrate technology into your classroom. Our IT program is based on best teaching practices adapted from the eMINTS instructional model and SMART Technologies.

We will be providing a few Smart Boards to each district, so the chosen teachers will be those that team well together. It is important for these teachers to be able to share lesson ideas and support each other throughout the training. Through our experience, we have chosen to provide the option to 3-6 grade teachers as first priority. We have found through our work with eMINTS that our training is a best fit at these grade levels. In Churchill County, we have chosen to install Smart Boards in 6th grade classrooms in order to best prepare students in accordance with the 8th grade technology standards.

As a first year IT teacher, you will be provided with the following equipment in your classroom: Smart Board, projector and teacher laptop. If you complete all the requirements for year 1 training with 100% attendance in the online training sessions, you will also receive a document camera. Your Smart Board will be mounted, and we will send a Smart Board installation technician to your location to show a maintenance person in your district how to install the board. If you do not follow through with the requirements of the grant, you will lose the equipment.

Each school district will also receive a video camera for participants to record their lessons. As an IT teacher, you will be required to submit the following in order to demonstrate your learning: at least one video lesson of you integrating technology in your classroom, an electronic portfolio containing all of the assignments that correspond with each of the training sessions, consistent comments on our training blog, and a one page reflection at the conclusion of the training.

The professional development requirements for IT training are: each participant will attend online training through Elluminate from 3:30-6:00 two Tuesdays per month for a total of 12 online training sessions. The training dates vary but most will be held on the second and fourth Tuesdays. This equals approximately 30 hours of training which may be used to earn 2 license renewal credits or a stipend.

In addition to the online training, we will also meet face-to-face on four Saturdays: Smart Board Training Level I-December 12, Smart Board Level II-January 23, Productivity Tools-March 9, and Multimedia Products-May 8 in Churchill County. If you work in Humboldt, Lander or Pershing County, you have the option to attend the Smart Board trainings in Humboldt County with Jeanne Moline (dates to follow). You will be paid mileage for travel and if you choose to come to Fallon on the Friday night before Saturday training, your hotel room will be paid. You will have the option of earning 2 renewal credits or be paid a stipend for the Saturday training sessions.

I look forward to assisting you as you successfully incorporate technology into your classroom. By showing interest in the training, you are clearly aware of the need to prepare our 21st century students for the best possible future with technology. Thank you for your consideration, and please contact me with any questions.

Sincerely,

Michelle Richardson
IT Trainer
Churchill County School District
775.423.6955
nchardsonm@churchill.k12.nv.us

IT Reflection #2

Date 6/23/2011

Name_____

Based on the information from the website:

and from the Copyright Quiz, what did you learn that will help you as an educator using technology in your classroom?

IT Reflection #6

Date 6/23/2011

Name_____

Which class community and/or class management strategy/tool from training would you like to focus on using in your classroom?

___

SMART Board Lesson Rubric

Lesson Design Features • Formatting Properties • Style • Graphics • Background/Theme	10 points	
Interactivity • Using Gallery content • Object Animation • Dual-page display • Reveal	20 points	
Rich-media integration • Use of SMART Recorder, Video Player, or Page Recorder • Importing with Capture (something you can't Copy/Paste)	20 points	
Organization • Lesson Activity Toolkit • Page organization & naming • Page grouping • Linking • Attachments	20 points	
Involvement • Participant involvement	10 points	
Presentation • Ease of use • Use of correct terminology • Ad-hoc lesson delivery	10 points	
Assessment • Include some kind of assessment	10 points	

Portfolio Requirements

	Session Topic	Competency
1	Getting Started	Choose 5 lessons that you want to enhance. Reflect on how you are going to integrate technology.
2	Transforming Learning	Create a Technology Use Goal Statement considering each level of Grappling's Spectrum.
3	Inquiry-based Lessons & Think Sheets	Create or enhance a Think Sheet that is appropriate for computer use in your classroom.
4	Preparing students for the 21st century	Find out if you have access to a computer lab/cart in your school and when you are able to use it! Choose one lesson to enhance with technology and find an interactive website to use in your classroom.
5	Smart Board Level 1	Begin creating a Smart Notebook lesson and be ready to share one page with the group.
6	Smart Board Level 2	Enhance an interactive lesson based on the Smart Board rubric and be ready to share how it went.
7	Designing an Integrated lesson	Develop a lesson plan that meets curriculum standards and addresses appropriate student use of technology based on the 21st Century Framework.
8	Collaborative Learning	Create a collaborative assignment for student use that integrates technology.
9	Working with Authentic Data	Create an Excel worksheet for teacher application or design and implement a lesson that uses Excel.
10	Using Presentations	Use presentation software to create a presentation for either teacher or student use.
11	Finding and Organizing Internet Resources	Create a Website Evaluation appropriate for your grade level and use it in your classroom. Address the Classroom Use Policy with your students.
12	Exploring the Web	Find a way to connect to others outside of the classroom (blog, wiki, video streaming, and video clip) and plan a lesson based on exploring the web.
13	Classroom Communication	Use a template or develop an original layout to create some form of classroom communication (blog, podcast, newsletter, and website). Explain how you use the communication tool for students, parents, the community, and other classrooms in your portfolio.
14	Productivity Tools	Create a productivity tool to increase student achievement. Include a reflection in your portfolio.
15	Spreadsheets as Tools	Create a spreadsheet for teacher or student use. Include a reflection in your portfolio.
16	Multimedia Presentations	Create a multimedia presentation for teacher or student use. Include a reflection in your portfolio.
17	Final Reflection	Type a short one page reflection that articulates your goals for continuing to use the IT training framework in your classroom and outlines goals and specific activities to reach those goals as you continue using technology in the future.

Enhancing Education Through Technology
Improving America's Schools Act of 1994
Project 10-765-01000 Integrating Technology Project
EETT Consortium Grant of
Churchill County School District, Humboldt County School District, Lander County School District,
Mineral County School District, Nye County School District, Pershing County School District,
Storey County School District

Integrating Technology
Principal-Supervisor Survey 2011

Please complete this survey considering only those teachers who participated in the Integrating Technology Project. (ITP)

On a scale of 1 to 5 with 1 being the lowest and 5 being the highest rate each of the following questions.

1. From your observations, how often did ITP teachers use technology (Smart Board) in their lessons this year? 1----5

2. From your observations, Smart Board lessons by ITP teachers are *interactively* engaging students. 1----5

3. From your observations, ITP teachers have used inquiry-based lessons incorporating the use of technology. 1----5

4. From your observations, ITP teachers use technology as a communication tool in their classroom. 1----5

5. From your observations, ITP teachers have encouraged their students to use technology as a communication tool such as email or blogs. 1---5

6. ITP teachers have shared their learning and excitement with you about integrating technology in their classroom lessons. 1----5

7. ITP teachers have invited you to observe a Smart Board lesson in their classroom. 1----5

8. The Integrating Technology Project has impacted ITP teachers' teaching and the learning of students in their classroom. 1----5

We asked ITP teachers to rate the following questions in relation to their learning through ITP and the effect on their skills and their students' learning. Rate the following questions based on <u>your</u> perceptions and <u>your</u> observations.

On a scale of 1 to 5 with 1 being the lowest and 5 being the highest rate the following questions.

1. The integrating of technology in the classroom has increased due to participation in this class. 1--------5

2. The use of integrating technology in the classroom has increased student:
   Achievement. 1--------5
   Classroom engagement. 1--------5
   Use of technology to research questions. 1--------5
   Knowledge of communication through technology. 1--------5
   Use of technology to produce academic projects. 1--------5
   Higher order thinking skills. 1--------5

Return this survey to the grant evaluator Gary Imelli @ imellig@cccomm.net

Enhancing Education Through Technology
Improving America's Schools Act of 1994
Project 10-765-01000 Integrating Technology Project
EETT Consortium Grant of
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Mineral County School District, Nye County School District, Pershing County School District,
Storey County School District

Integrating Technology
Teacher Survey 2011

1. How often do you use technology (Smart Board) in your lessons now after participating in this class?

2. How many of your Smart Board lessons are *interactively* engaging students? Which lesson is most engaging? 1-5, 6-10, 10-20, 20+

3. How many inquiry-based lessons incorporate the use of technology? 1-5, 6-10, 10-20, 20+

4. How do you use technology as a communication tool in your classroom?

5. How has technology influenced your instructional decisions?

6. How do you use presentation software in your classroom?

7. How has technology impacted your teaching and the learning of students in your classroom?

8. Have you ever designed a lesson plan integrating technology?

9. Have you used web based lessons?

10. Have you used webquest as a instructional tool?

On a scale of 1 to 5 with 1 being the lowest and 5 being the highest rate the following questions.

1. My integrating of technology in the classroom has increased due to my participation in this class. 1--------5

2. The use of integrating technology in my classroom has increased student:
   Achievement. 1--------5
   Classroom engagement. 1--------5
   Use of technology to research questions. 1--------5
   Knowledge of communication through technology. 1--------5
   Use of technology to produce academic projects. 1--------5
   Higher order thinking skills. 1--------5

Return survey to instructor Michelle Richardson @richardsonm@churchill.k12.nv.us

Enhanced Education Through Technology

Principal/Supervisor Survey Results

Average rating with 1 as lowest and 5 as highest

1. From your observations, how often did ITP teachers use technology (Smart Board) in their lessons this year?	4.5
2. From your observations, Smart Board lessons by ITP teachers are *interactively* engaging students.	4
3. From your observations, ITP teachers have used inquiry-based lessons incorporating the use of technology	3.5
4. From your observations, ITP teachers use technology as a communication tool in their classroom	4.1
5. From your observations, ITP teachers have encouraged their students to use technology as a communication tool	2.5
6. ITP teachers have shared their learning and excitement with you about integrating technology in their classroom lessons.	4.2
7. ITP teachers have invited you to observe a Smart Board lesson in their classroom	3.5
8. The Integrating Technology Project has impacted ITP teachers' teaching and the learning of students in their classroom.	4.3
1. The integrating of technology in the classroom has increased due to participation in this class	4.4
2. The use of integrating technology in the classroom has increased student:	
Achievement.	3.5
Classroom engagement.	3.9
Use of technology to research questions.	3.6
Knowledge of communication through technology.	6.7
Use of technology to produce academic projects.	3.7
Higher order thinking skills.	3.8

Enhanced Education Through Technology

Teacher Survey Results

Average rating with 1 as lowest and 5 as highest

1. My integrating of technology in the classroom has increased due to my participation in this class.	4.8
2. The use of integrating technology in my classroom has increased student:	
Achievement.	4.5
Classroom engagement.	4.7
Use of technology to research questions.	4.2
Knowledge of communication through technology.	4
Use of technology to produce academic projects.	4.5
Higher order thinking skills.	4.4

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Integrating Technology Teachers
Reflection Notes

Brenda- Thank you for your reflections. In reflection #1, I appreciate that you realize the importance of surveying students to find out "digital smarts". This is very important, and then you can find your experts that way too. Also, you talk about Tip #5- Finding out more about taking advantage of online tools and community resources for free, and I think this has to do with being aware of what's going on in your community and using resources like our county website: www.churchillcounty.org and other local sites relevant to the learning in your classroom. Thank you for your comments on Copyright, it's not always black and white, and we just have to be aware! I appreciate that you were able to find ideas for good web design that you can use as you work on your site. I like the tree map of your fruit project, very clever and fun to push students to higher-level questioning! The Number the Stars WebQuest sounds great. You would have to make modifications and make sure the links were working. That's one problem that seems to come up frequently with WebQuests. Thank you for your willingness to adapt and use Smart Ideas as a thinking maps tool! Your vertebrate animal rubric is perfect because it gives just enough information without being overwhelming. I like that it fits on 1 page and is to the point and easy to interpret. The Global Travel interdisciplinary assignment sounds really great. It gives your students a great opportunity to extend their learning into cross-curricular topics! Troubleshooting really depends on the moment, it's good to have a plan in place for things like computers not starting, Smart Board light is red, etc. Thanks for sharing your ideas with the scanner too. Thank you for your final reflection. Yes, technology is good but can be a distraction when it's not working properly. Thank you for your flexibility and willingness to try it out~ that's what makes us great teachers!

Cherise- Thank you for your reflections. I think it's important to use the Smart Board as a tool to model things like whole group searches. Then, like you said, the students can learn from what you're doing and go replicate it on their own. It is important to have as many ways to communicate with parents as possible and by having a website; you are opening one more door. Copyright is a difficult issue in education because I don't think teachers are intentionally breaking the law, but it does happen. It is good to just be aware of things like the Disney movie fee so that we are doing what's right. Penguins are fun! It's important in questioning that we are first modeling good questions and then having students write their own as you stated. I've seen teachers set-up a question sheet that provides one example of each type of question, and the student writes their own question of that type below. This is a really cool activity. The BEE WebQuest is very fun! I'm glad you were able to get this from a teacher in our group. This is one benefit of working with this project, the many shared resources. Yes, it's important to check links and walk students through the first WebQuest. Then, they can take more responsibility as you do more. Class management is always tricky depending on your students from year to year. It is important to help them be independent from their peers especially considering the world we live in today where self-reliance helps you succeed. I can see where an insect Interdisciplinary Unit would be fun! I'm glad you were able to do some file sorting and purging in order to help you find your files more easily. Troubleshooting is never easy,

but if you have some tips or tricks you can follow, then you'll be able to save time! Thank you for your final reflection; I hope you continue to use and share with other teachers. It has been great to have your thoughts and shared ideas with our group. I wish you the best!

Elsa- Hi Elsa, thank you for sending your reflections. As for the tip sheet, I must say that I just started using Flickr as a way to upload pictures from my phone to the site to share and print out, and it's awesome. I imagine that it would be great for school too. I've seen e-pals used as a great collaborative tool, and I bet it would be great for your girl scouts too☺ Donorschoose.org is a great resource for anyone to use, but I hear what you're saying about small, rural districts. Wordle or any word cloud application is a great reading and writing tool. Google Tools for educators is an excellent resource for collaboration. Smart Responders will add to your class engagement, and I think you'll find it's a great tool to check-in with your students. There are so many web design ideas to consider in reflection #2, I'm glad you are aware of these. I hope the tips are useful as you are designing/enhancing your own website. I like the candy questioning game you use for higher-level thinking and questioning. This sounds great! WebQuests are great if you are able to find the right age-appropriate one! Sometimes it is hard in primary grades to introduce them; it takes a lot of modeling for the first few times. The class roster by the computer as a check off sheet is a great management tool; I've seen this work successfully in many classrooms. Group rotations is nice with the circle divided into fourths as you stated, but it depends on the kind of class and students you have as to what you can do sometimes. I like your Smart Ideas assignment for Anthony. Did you do this for each student? This is a great tool for any type of idea organization. Rubrics are a fantastic way to make sure students know exactly what is expected. They can be very short and to the point just to make sure everyone is on the same page. I like the idea to use units that go with your reading, and I hope this works out for you. When students are able to make cross-curricular connections, the learning is so much stronger! I'm glad you got that desktop cleaned up as well as your other files and favorites accordingly. It will save you time in the long run if you're organized at the start of the year. Thank you for sharing your help scenarios during our training session. Your troubleshooting for each piece of equipment is right on and your log will be most useful, sometimes it depends on the problem as to what steps you will take. It's great to have a plan. Thank you for your final reflections. I hope you are able to rest before your new little one comes. Best of luck, Elsa!
Love the acrostic☺
Hardware, software, network
Errors are never fun
Look at the back of your computer to see if all cables are
Plugged in before you call a tech.

Crystal- Thank you for your reflections. I like the "teach one, each one" method to help create student experts in the classroom. Wordle is a great visual tool for vocabulary and reading activities. I appreciate that you've been able to use the many media resources out there, and I'm sure your students are better for it! Copyright is very interesting and little facts I never even considered like the 10 day limitation on broadcasts. It's not always black & white but good to be aware as you stated. There are many good web design tips

to keep in mind as you work on your own website. Higher-level questioning especially the cause/effect and analysis examples you gave here are so important for young minds to learn early on. I appreciate that you model these for your students and encourage them to be good readers and thinkers! I'm glad you have a penguin and bee webquest to use. WebQuests are really awesome once you model how to do one with your class together, and then they can take more responsibility as they become familiar with them. Sometimes you do have to take out activities and add or delete certain links. I'm glad you are open to trying them out. Four corners is a great activity. Students need different types of learning activities, some individual, some group because we all have to learn how to get along in the world! Your sensory apple activity with Smart Ideas sounds great. The software is very user-friendly, and I'm glad you got to display your work☺ I'm glad you used the hamburger rubric and that it worked for you. It's sometimes hard to give first graders a rubric, but in a simple format that's easy to understand and follow, it makes all the difference. Your bees interdisciplinary project is so cute. The PowerPoint was great for first grade…wow! I appreciate your honesty when it comes to file mgt., and I think I may have you beat as the queen of clutter! I did go and clean out my stuff too, so I guess I got the nudge too! It will feel great starting a new school year. Thank you for sharing your help scenarios. Troubleshooting is really a lot of trial and error, and I'm glad you've taught your students correct ways to do things and how to be preventative. Thank you so much for your hard work with technology integration. You will have a blast with the responders, and I'm excited for you to use the 6 IPODS! I wish you all the best!

Jennifer- Thank you for your reflections. When I first took the Copyright Quiz, I failed miserably. Disney copyright is a bit weird and unrealistic at certain points. Even though not everything is black and white, we still try to obey the laws and be aware. This is why I brought it up, so that we can all revisit copyright law and try to follow it as best as we can. Keep it simple is a good motto to follow when creating your website. Sometimes it gets too busy, which is distracting to your audience. I hope you are able to use some of these design tips. I like your website rating smiley faces and how easy it is to follow for first graders. This helps them identify basic topics and pictures that should be on a site and will help them as they need more information from websites. Higher-level questioning looks great with matter. I wonder if students were whole group or in small groups and did they ask questions. As we model higher-level questions for them, with them, and then ask them to come up with questions by themselves, we are really getting into what higher-level questioning is about. I remember you working on the little red hen WebQuest, and yes, it's important to check those links! There are some great ones out there that you can modify and only use some of the activities. I encourage you to search for some this summer. There are many on apples and insects, perfect for first grade☺ If you give a pig a pancake is such a cute story, and your inspiration organizer is great. Any thinking tool that you can use on your board will really help the visual learners in your classroom, and the higher-level questioning does go well with this assignment as you stated. Your insect friendly letter writing rubric is simple and easy to follow as it naturally progresses from 1-4 points. I'm glad you discussed the key points and what a "good" fact is, so that students will have a clear idea what's expected of them. Your

Earth Day unit and movie is awesome. Anything that is cross-curricular will keep the students engaged and enhance their learning so much as it reaches across many disciplines. Thank you for your input on the help scenarios and working through problem situations, and yes, don't be afraid to ask a colleague for help! I received your Troubleshooting log, and the benefits of being able to troubleshoot will not only save your tech department, but allow you to be self-reliant and time-effective, not to mention confident to work through situations. I like your list of tips, especially the last…stay positive☺

Mary Jo- Thank you for your reflections. The voice thread idea is great. I used this when I started my training group before this group, and they loved it. You could get a voice synthesizer and disguise your voice…ha! You did great on your class website, and you will love having Androids next year. I don't know what I ever did without mine! You'll have to let me know how the student website feature works on Weebly if you do it. I like the idea of putting games on the server too. I'm not sure why that's never happened. I know what you mean about copyrighted music and staying within the 10% guideline. I think it's good to be reminded of this again. Again, you website looks great so I'm glad you adhered to these web design tips. I like your higher-level questioning activity and creating a non-verbal representation to go on the timeline. I think I might have seen this in your classroom☺ The weather WebQuest is the same as the others, you know you always have to check the links and modify activities to meet the needs of your class. It's weird that there wasn't a rubric. I'm sure your students had a blast doing the broadcast! I've seen the behavior clip chart work well in classrooms. Were there any technology related management tips you found useful? Smart Ideas is a great tool for visualization and organization. I encourage you to use this again as you said with another topic besides explorers. I saw both rubrics. For the egg drop rubric, I would encourage you to explain the point breakdown even further if you can so that there is absolutely no room for argument. Same with the explorer rubric and looking at point distribution and explanation. One thing I noticed was that even if there's no bibliography, they still get 2 points instead of 0. This might be something you want to look at and consider going to a 1-5 point scale and then multiplying the total by how you want to weigh each category. It is your rubric, I'm just suggesting☺ I'm glad you are doing more projects, and I bet your students enjoy doing them! The revolutionary war talk show sounds great! Students really thrive from cross-curricular projects that go into deeper levels of thinking. I'm glad you've been able to use the portal to store your sites and videos. You will be so happy to already be organized at the start of the next school year with your folders and files all setup. Troubleshooting can take you a lifetime to figure out through trial and error, but it's good to have a plan for certain equipment. We want to be as self-reliant as possible before we have to call tech!!! I think you did a great job incorporating technology this year and much of it did revolve around your website. Parents, students, and teachers have all accessed it to get information. This is so important. I am very happy with your progress and the work you put into our training. I know that you are a dedicated teacher, and your students are better for your use of technology. I wish you all the best!

Tiffany- Thank you for your reflections. There's never enough time to implement, I know! I really like the voice thread as a way to start the year and state expectations and it works well when you do have multiple classes like you said. I use wordle all the time, it's a great personal and professional tool. Copyright is hard to understand and is very confusing for me too. I look things up all the time, and basically what I've decided is that it's not always black and white. I usually follow my instincts and adhere to the 10% rule…less that 10% is ok to use without asking for permission. I always try to cite sources and don't copy books☺ I think it's all very confusing too but something to be aware of. The web design tips are good to remember when working on your site. I have to say, I love the word "viscosity" and your students could probably teach me a thing or two about plate tectonics. Thanks for sharing your HLT questions, and I appreciate the questions your students created. I like that the angle webquest you chose included hands-on activities as well as research. I'm curious to know what the final product was for the webquest and how it all worked out. Thank you for trying to overcome the challenges of getting into the computer lab and scheduling issues related to class management and technology. That's a good point to have extension activities for students who finish, so they aren't sitting without work. Thank you for the city-state poster and the xtranormal movie rubrics. I would like to see one of these. Your DNA/fingerprint unit sounds great, and I'm sure the students had a blast with this. Good work! I'm glad you took the opportunity to organize files, I hope this helps you start off the year refreshed. The troubleshooting tips are worth having on hand, and I do remember this being on the CCSD website. I'll have to point that out in the future! Thank you for your thoughts, and I'm going to check out the Xtranormal site for sure☺

Vickie- Thank you for your reflections. Voice thread is an awesome idea, huh!?! I've done an introductory podcast before, and kids love that kind of stuff. Wordle is great. Having Digital Experts in your class will help you out a lot. You could do a quick survey and see who knows what or teach a few experts what to do to help you out and do something that interests them as you said. I'm really proud of you for e-mailing the creator of a WebQuest to ask permission, and I've really gotten better at doing this myself. Copyright is not always black and white, but it is worth paying attention to and teaching students about. The amount of images from a certain site is one of those things to be aware of and follow what you know is right. I hope the web design tips will help you as you enhance your site. I wish I was in your class for the roller coaster unit☺ I know you are always encouraging students to use HLQ in your classroom. I'm glad you were able to find a WebQuest and modify it to make it work for your students. I like that it was diverse for all types of learners because sometimes they are very static. We usually have to cut activities and/or links and add others in depending on our timeline and end goals. It's all about flexibility! I like the idea about there's not a front to the classroom anymore. You are right on about being consistent and always having some type of assessment or assignment that goes with what they are doing with technology so that time is not wasted. I would love to see your CSI unit in action and the Smart Ideas template that goes with it…how fun! I'm glad you brought up the idea that a rubric isn't so confining that it takes away from students' creativity…this is crucial. You are right about Interdisciplinary units taking a lot of pre-planning time, but in the end it's so worth

it. I would love to see the trial and the culmination of the forensic/mystery unit. I student taught at Billinghurst Middle School where the middle school concept was used throughout teaching. Everything we did revolved around IDUs and the kids were so much better for it…we did everything from the Civil War to the Donner Party! A lot of troubleshooting is taking it one issue at a time and trial and error. I always like to get the kids involved so that we have a plan in case we get stuck. Thank you for your final reflection. I really like the last quote you said about learning through your students, and I appreciate that you have been able to implement and release because this is really the main point that I wanted to get across through the training. It doesn't matter what your technology level is as a teacher as long as you are willing to be flexible and open to learning with your students. They are better for having you as their teacher and next year's group will be awesome!

Dana- Thank you for your reflections. Blogging is great if students are into it! I've used Wordle for years now, and my family as well as friends and students all love it. There's something about the visualization that attracts people's attention. I encourage you to explore movies as an option if you get to that point in Science or Social Studies. As for copyright, there are so many gray areas that it gets frustrating. I think it's important to revisit copyright each year to be aware as you stated and follow your instincts. Some parts of the law are confusing too depending on interpretation of districts, like the Photoshop example you provided. I hope you consider these web design tips as you enhance your site. I enjoyed reading your questioning reflection and thank you for keeping the last question about penguins because it does show how students thing and reason through things. I found this very insightful. I do remember your bat WebQuest and what happened…you'll be scarred for life! This is a great reminder to check links before introducing it to students and to modify activities and delete as needed. Having students rotate to the computers you do have available is great. You have to adapt and make use with what you've got. I'm glad you were able to adapt the Smart Ideas template into a Venn Diagram, and it sounds like you got a great lesson out of it. I like that students really got into it and went deeper with the statements to get into higher-level thinking. I hope your snake rubric was worthwhile and that you'll consider using Rubistar again. The snakes in Nevada project sounds very interesting. The cross-curricular components including graphing, reading, researching, and writing all help tie the concepts together so that students really "get it". I'm glad you took the opportunity to organize files and folders as well as favorites. This will be a great start to a new school year. I'm glad you have a basic plan for each of the equipment you have mentioned in your reflection. I know sometimes things happen that are out of our control, and we have to just go with it, but it's nice to have some basic troubleshooting skills. Thank you for the time you've invested in learning with our training group and working on implementation in your classroom. I appreciate that you recognize the visualization as a key to understanding and learning with this generation of students.

Susan- Thank you for your reflections. I think it's really important to survey students to find out their "digital smarts" at the beginning of the year. This helps you to find their skill levels and maybe create some expert students to help you out. I'm glad you're making progress with your Smart Board. I would love to visit sometime. Also, there are many web tools out there to use. It's just a matter of finding resources and trying out different applications like Wordle. It's very easy to just type in the text to create word clouds, and the kids love it! Copyright is always a tricky topic because it's not always black and white. I'm glad you are going to post the chart for reference. It's great to be aware and do what we're able in accordance with the laws. I hope you found the web design tips helpful as you work on your website. I like the questioning activity you did with fruit and the ancient civilizations. Anytime you ask kids to dig deeper and justify why something might be a certain way, you are reaching HLT skills that promote 21st century learning. The website evaluation tool is appropriate for 6th grade students. I would like to know how it worked with your students. I like your Roman life timeline to show how it's evolved over time. It looks like you had a lot of fun with this project and using a variety of shapes, connectors, images! Your Roman Interdisciplinary project really extended into other curricular areas. I like that they even used simple machines in their dialogue as they were writing their plays…very cool! I'm sorry you missed file organization because we spent about 45 minutes organizing after we discussed various ways to do so. It was one of the most useful sessions this year according to the reflections I received from other teachers, but if you have any time over the summer to delete, reorganize, and add folders to help you as you start again next year, I strongly recommend doing this. It is so refreshing! Yes, for troubleshooting, checking the cords is a big problem. There are also a few other tips like restarting the equipment, checking online support sites specific to the piece of equipment, and making sure your equipment is cleaned frequently. Thank you for your final reflection. I know it takes time to implement, and I hope you will find activities you can use over the summer with your students next year. I appreciate your willingness to try to use the concepts and for participating in the training. I wish you all the best as you move forward with technology!

Sandra- Thank you for your reflections. I'm glad you have student experts in your classroom for different activities throughout your classroom. Your website looks great! I'm glad you are teaching your students to think globally because this is really the direction education has been heading, and I hope that you're able to find a safe way to connect somewhere outside the U.S. I would love to continue to hear about your fun projects. Wordle and BrainPop are really cool tools to use also. I'm right there with you and the visualization the Smart Board provides. Collaboration is also a huge concept that we will continue to have to embrace as we move into Common Core standards also. As for copyright, I believe the same thing as you for fair use. I e-mail to ask permission to use EVERYTHING even if it doesn't say to, just because I would want the same respect. Your phonics project sounds awesome, and I bet your daughter enjoyed working for you! What a great opportunity for you both. I noticed that you followed this on your website also. It's a great reminder each year to make sure we are respectful to others, and you're right about fairness being a blessing. Thank you for completing web design tips and

referencing your resource. I can tell you followed the tips in your site design. I completely agree with you as far as questioning in the classroom goes. I can't tell you how many times I've seen this very thing happen where students wait for others to answer. Small group discussions allow students to have more of a voice, even when you assign specific roles or have each student come up with one question to ask or answer. I like your idea about having a graduated organizer for next year. It truly is a rare gift to question and want to learn and find out about things. We often just allow things to just happen around us without searching and wanting more out of life. Thank you for your thoughtful perspective, I thoroughly enjoyed reading your reflections. This WebQuest looks good and is easy to follow. Some tend to be very long and wordy without clearly defined objectives and tasks. Your play sounds like a lot of fun, and I do like using organizers to get to HLT skills also.

I think you are absolutely right about direct instruction still having a place in students' learning. It is necessary to have a variety of teaching strategies to keep your students engaged. Technology is just another tool in your teacher toolbox. I like the activity you did with arrays and stuffed animals, and I hope you did record the students doing this. Technology and giant stuff IS REALLY fun! I also like that you have a captain to guide your groups. I really appreciate the science lesson where students carried on the lesson while you were assisting others. I think this really shows that students are able to take ownership of their learning and that they are so hungry for learning in new ways, like with the Smart Board for example. I hope you get the opportunity to spend more time teaching Science. I really appreciate your website as a tool students can use to extend/reinforce their learning. I like what you said about the ebb and flow of it evolving over time. It is a constant work in progress, and I'm glad you are willing to be flexible and recognize this.

A main idea chart is a great way to use Smart Ideas. There are so many connectors, images, cliplets, and shapes to use in this application. I'm glad you noticed that it was too hard for your students so that you can make adjustments for next year. It is a great teacher tool for creating organizers for your Writing Workshop as you noted. WOW, your class must be a group of scientists after all of the experiments you did with them. I like that you did a variety of activities from the sink or float to the mystery powders and then let them go home and conduct an experiment. I think you're right about giving them time to come up with questions, but this project is a great feat for second graders! I want to be in your class! Common Core is something I'm very excited about also, and it does invite the opportunity for interdisciplinary instruction and is absolutely what 21st century learning is all about! I like the geography project you have and the fact that it reaches across to vocabulary and back with rivers. Interdisciplinary or cross-curricular learning is really what authenticates learning and allows students to thrive, in my humble opinion☺ I'm glad you were able to organize your files, and I have also thrown away many of my paper files! Be brave, and dare to try new things is a great motto when it comes to troubleshooting. Your troubleshooting list is very common for many teachers. Thank you for your final reflection, and I hope you continue to learn and grow. You have done amazing things in your classroom, and your students are very lucky to have you. I wish you luck on applying for the portable computer lab, and your website is

awesome. I will let you know when I revisit it, and I wish you all the best with Common Core. Thank you for your kind words, and it has truly been a pleasure!

Barb- Thank you for your reflections. It's important to find your experts so you know which students can help you out. I'm glad you have access to a few older computers because any technology helps! Keep using that Smart Board, and I really like the Glogster activity you did last year and also having the students create their own Smart Notebook lesson. Copyright isn't always black and white, but it is good to remind your students about it each year as you mentioned in your reflection. I hope you are able to use some of these web design tips as you work on your website! Smart Ideas isn't exactly black and white either. It's a great way to organize information as you stated with your mental disorders and respect projects, but it does take some modeling and practice. I can see where students who are very linear would have trouble with the creativity aspect of it. I hope you can make it work for your class. The Last Spin WebQuest sounds like something that would fit right in with your class. I like that it addresses everything from Gangs to Suicide also. I like that you would be willing to make adjustments as needed and make sure to check those links! Yes, if you group students and make sure everyone has a role, things go much smoother. Then, you know who is responsible for what and can have meaningful assessment. It's also great to have them do peer and self-assessment to contribute to an overall grade. I'm glad you are open and willing to create rubrics. They do allow students to see exactly what is expected so they don't have any room for argument…I'm sure you know all about that! I can see many possibilities for your nutritional project to be very cross-curricular. I'm glad you took the time to get organized. You'll appreciate it when you start the next school year! It looks like you're very familiar with troubleshooting, and as small, rural districts, we need to be somewhat self-reliant because we don't have the largest tech departments. Thank you for your final thoughts. I'm glad your students like using the technology and that you're able to find uses for it in your curriculum. I wish you all the best as you branch out and try new resources this summer and next year!

Kim- Thank you for your reflections. I'm glad you've remembered to bookmark your sites in your favorites. I hope you have a fun summer as you go through them! I'm glad you were able to use the Copyright chart for reference because it's not always easy to remember what is ok and what is not. Many things may be used for educational purposes, but it's good to go back and revisit this each year. As far as the Disney movie in the quiz we took, that's a tough one. I know this is a tricky situation, and I always recommend to be safe and try to do what you think is right. I like the idea of the questioning die and think you could really model some HLT questions for students as you stated. Our students never cease to surprise us with their creative thinking. I'm glad they enjoyed Winn Dixie! The thing about WebQuests is finding one that works for where your class is as far as ability and time. I'm glad you liked the one we did in class, and I hope you continue to explore for one or two to try. They really are a great way to get students to

use higher-level thinking to solve authentic tasks. The Underground Railroad sounds like a fun project for students with many cross-curricular links. I like that it extends into the Heroes' project. Check out this website if you get a chance: http://myhero.com/go/home.asp The my hero project is a fantastic way for kids to celebrate their heroes through technology. I'm glad you were able to organize your files. I appreciate your troubleshooting tips and tricks. I like that you know not to change the projector bulb on your own. There is mercury inside the lamp that could be dangerous to students. We actually had one explode with students in the classroom here in Churchill. This is why we recommend cleaning them at least once a month! Thank you to being open to using technology in your classroom. Continue to help your students reach for the stars, and I'm glad I had the opportunity to work with a star teacher☺

Lisa- Thank you for your reflections. Copyright is not always black and white, and as you mentioned the lower grades teachers aren't always aware. I know it's very important at all grade levels, but I think it's taught more in upper elementary and secondary levels. The important thing is to revisit this each year with your students and also share with your colleagues what you know so that we are all following the laws and giving credit where credit is due! I hope you will be able to use the web design tips in designing your own site☺ As for the questioning reflection on animals, I think your students have babies on the brain! There are also many thoughtful questions like: why do bison roll in the dirt and are bison and buffalo the same thing? I like this because they are comparing the two and justifying their answer, which gets into HLT and questioning. The dice game you use with the question words can also be modified for HLT as you could guide the students to come up with different types of questions. Your website evaluation is very easy for 3rd graders to complete. I would like to know if you had your students use this and how it worked for your class. I'm glad you have very specific management strategies for using the computers in your classroom and in the lab. It's important to have an expert in each group that the kids can rely on if something comes up while you're working with other students. I like that each student has a folder to save their work to and that they have to ask permission before printing. These are important considerations that will help your class flow smoothly. Using Smart Ideas for a food chain is a perfect introduction. I know that kids tend to get distracted by the shapes, colors, and connectors, but after the first time, they focus more on the task and not the bells and whistles! I hope you're able to use this application in future projects! Your animals and ecosystems diorama and report rubrics are a great way to have students show you what they've learned instead of just taking a test over the material like you said. I bet they really enjoyed sharing the projects. I know what you mean about trying a variety of assessments rather than getting stuck with the same routine or feeling limited because of state testing. I'm glad you're willing to explore different types of assessments especially when it comes to using technology for surveys, online quizzes, rubrics, etc. Ok, first I'm excited that you're planning an interdisciplinary unit on pioneers. That sounds great, and I like that you're making it interactive by putting the wagon in Smart Notebook. Second, what do you mean your school computers won't have Microsoft office next year? Are you kidding? What are you supposed to use instead? That bothers me a lot because how can we prepare students with 21st century skills and common core standards if they take away the

industry standard applications? Sorry, just a little vent there. Third, here's a couple of links to some WebQuests that I've seen teachers do before for westward expansion, they might give you some additional ideas or you can Google westward ho to get others:
http://www.hobart.k12.in.us/jm_fourth/!WEST!WAR_DHO/concl.html
http://projects.edtech.sandi.net/sessions/westwardho
I know you had trouble finding a webquest that worked for you without broken links, and I think this would be a perfect opportunity for you to try to include one in your Pioneers unit. This might be more appropriate for 4-5th grades, but you can look and see.

Thank you for your troubleshooting response. In rural districts, we are sometimes limited on the help we can get because the tech dept. is so small. Anything you can do on your own will help you be more self-reliant and help your tech dept. also. I like your acrostic:
Help menu for program questions
Explore common solutions
Log of errors
Put in tech support work order
I hope you're able to use your troubleshooting log as problems arise with your technology. It's great to have directions posted near the computers for students to follow like you demonstrated for logging in and for the Accelerated Math scanner. Having the directions posted allows students to be responsible for looking for the information rather than having you repeat it to them over and over.
Yes, it's important to back-up and archive your files and e-mail also. I have never lost my entire account, but that would be a nightmare for me. I'm glad you recognize strategies that you can use to keep you organized and ready to start a new school year. Thank you for your final thoughts, and I hope you do explore some WebQuests and interdisciplinary projects for next year. Common Core is absolutely interdisciplinary, so it's great that you recognize this now for planning next year. I understand some of the frustrations you face with being restricted by your tech dept. and with video streaming. I've been fighting this battle for 5 years now, and it has slowly gotten better. Again, it seems bizarre to me that your tech dept. would remove Office. I just don't get it. You can install Smart Notebook for free on student computers and use that as a presentation tool or there are online presentation tools if you want to go that direction. Please e-mail me anytime, and I can help you with that. Thank you for your hard work, Lisa. I love to hear that the technology has made a difference in your teaching. I wish you all the best!

Dawn- Thank you for your reflections. Yes, a refresher each year on copyright and what's permissible is a good idea. I like that you mention specific examples of what you aren't supposed to do in relation to copyright. As far as playing the entire song during your cross country presentation, it's ok as long as you put the artist and song in the credits at the end. We've come across this several times. Also, since it's not going to be reproduced and sold, you are covered. I incorporate images on my website without asking permission, but then provide the resource for where you got it. It's not always clear what you can and can't do, but it is good to be aware and try to adhere to the laws! I hope you're able to use some of these web design tips as you create your own website. I hope that Dreamweaver works out for you, and again I'm sorry it didn't work out as I had planned for our training. I didn't realize that each district is setup differently for teacher websites, and it's hard to get together using the same application. There are

many issues including hosting a site that I didn't realize as an issue in each district. Your website storyboard looks like you've carefully considered what would be appropriately placed under each heading. I like your strategy for inch, foot, and yard questioning and this is the first I've heard of it. Your questioning lessons were great examples of how to get students to reach HLT questions. For "Tanya's Reunion", you modeled questions for and with the students. Then, when you read "A very important day", students were already coming up with HLT questions on their own. I'm happy with the learning that took place too as you stated. I'm glad you are interested in using student experts in your classroom. This can be found out very quickly at the beginning of the school year. I like that you would have students donate a recess in order to learn their station, and have common problems for them to practice and also alternate activities if they can't figure out the problem. I also like the idea of keeping a review file as shown in the Edutopia video clip, where students would add to the file each day and then by the end of the year you would have a year-in-review file…that would be NEAT! I think your website evaluation is appropriate for 4th grade. I especially like that under the Authority heading, it asks if the expert is someone younger than 18 and without a degree. I think this makes the kids focus on what characteristics make someone an expert. I'm glad you recognize that the tech department does have other obligations to maintain a broader school network, and that by trying to fix your own issues, you are contributing to the good of the community! Your second point being that we should each have some basic computer proficiency in the world we live is valid, and there is division that's been created by technology i.e. the Digital Divide or referring back to Digital Natives vs. Digital Immigrants. This brings to mind an article that you might enjoy: http://www.kilevadvisors.com/publications/Generations%20in%20the%20Workplace%202008.pdf It's called Four Generations in the Workplace, and it's very enlightening. The troubleshooting tips list that you've created will help you manage your technology, and I hope you're able to have student experts help you next year. You might even consider posting some tips and directions for technology use around your classroom. I wish you the best, Dawn!

Denise- Thank you for your reflections. The voice thread idea from the first reflection is a great way to introduce yourself to students and have students introduce themselves to you. We have to help our students think globally because this is what will help them be successful in the 21st century and with common core standards coming our way also. The Smart Board allows us to be very visual in our instruction as you stated, and using web tools like Wordle and Glogster really allow students to demonstrated deeper levels of thinking. It's nice that teachers fall under the category of Fair Use, isn't it!?! We do need to be mindful of what is acceptable, and it's good to have the chart posted somewhere that you can access and refer to frequently. I hope you'll refer to the web design tips as you create your own website. The website evaluation you used for your class as they rated particular websites is easy to complete and very straight-forward. I also liked that you included a teacher signature so that you are checking the appropriateness of each site. I've never heard of fat and skinny questions until this training. It's a way to categorize questioning and help students dig deeper with their questioning. Modeling good questioning is essential at all levels but especially when you're using different types of text as you mentioned. I haven't seen the U.S. coin

WebQuest, but it sounds great to help students learn about the purpose behind each coin in designing their own coin. It is a good idea to model the first webquest with the whole class step-by-step just as you would with any new activity or assignment. The Reading Comprehension Questions is an easy template to use with Smart Ideas to get started because it doesn't require a lot of extra bells and whistles. Students can easily add their questions to the template and then practice with the clipart and connectors. Community Treasures sounds like an authentic interdisciplinary unit that avoids the potpourri effect. I'm glad that you recognize the importance of having a purpose behind each activity as it relates to the overall objectives of the unit for each subject area. I've gotten much appreciation for allowing you the time to organize your files. I'm glad you created folders and sub-folders to help you further organize. It's important to have some troubleshooting tips to follow before calling tech because it helps us be self-reliant and able to problem-solve, which is great to model for students! Thank you for your final thoughts. You have absolutely contributed to increased student achievement through your willingness to incorporate technology into your curriculum. Thank you for taking this opportunity to familiarize yourself with technology; your students are fortunate to have you as a tech-savvy teacher!

Final Reflection #12
Date 6/29/2011

Name____

Reflect on how your year went as you integrated more technology into your curriculum and what you have gained from attending the training.

I learned so much in the last year about technology. We use it in my class daily in all different subjects. The students love being able to use the SmartBoard and Elmo and have become very proficient with them. They help my subtitute when I have one.

My students have done individual and group research using the Internet for several projects this year and love to do word processing. They beg to be able to type their stories and poems. They have gotten very proficient with opening and saving files. Each week they are on a MAPS reading website as

part of our literacy block working on whatever curriculum they need for the MAPS score they currently have. Anything that envolves them getting to use a computer makes them excited.

I have not gotten as far with interdisciplinary units and Webquests this year as I would have liked to, but plan on working on that over the summer for next year. We have been very limited with what we can access in our district this year. Hopefully, by next year our bandwidth problem will have been fixed so that we are able to access more online next year. That has made it really difficult when planning on doing any kind of an activity because so many websites have been blocked, especially if they stream video.

I am very excited that I will have my same group of students with me next year. I will be able to build on the computer skills we have developed this year instead of having to start over. I can't wait to see what they are able to do next year.

I had planned to have my class create some PowerPoint presentations next year. However, Microsoft office was recently removed from my student computers and will be removed from all of the student computers in our district so I am going to have to look an alternative software to use. I want to create several interdisciplinary units around fourth grade science and social studies units. I think this will help with the depth that the Common Core Standards are going to require. I also plan on using the Concept Mapping software more next year. Both my students and I really liked it.

It's exciting that more educational catologues are now including interactive software for the Smart Board. I have seen what looks to be some great ones for reading and math that I plan on getting this summer. It is nice to not have to always create your own!!!

Thank you, Michelle, for all of your time these last two years with providing us with this training. I have gathered so many ideas for

using technology. I will continue to use them and to keep adding to them. The Smart Board and Elmo have made such a difference in my teaching.

Clark County School District

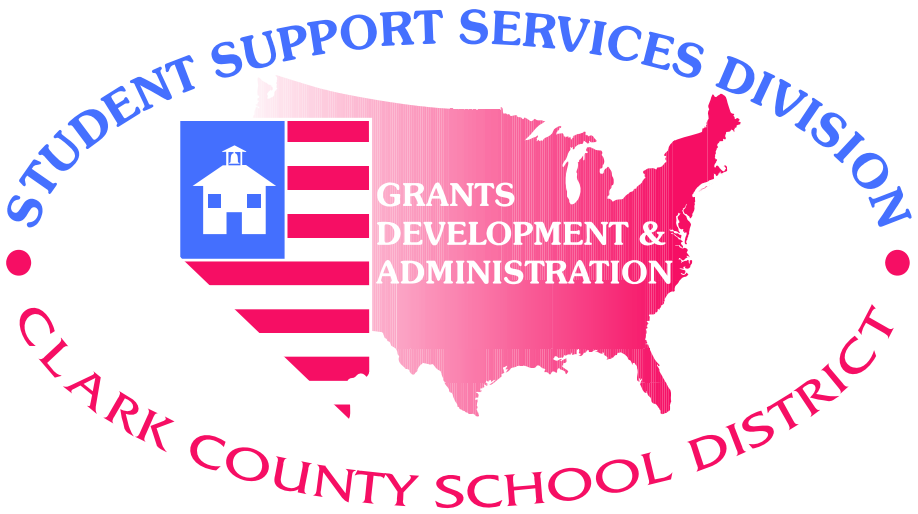
CLARK COUNTY SCHOOL DISTRICT

ENHANCING EDUCATION THROUGH TECHNOLOGY

COMPETITIVE

(CCSD Grant #981)

FINAL REPORT FY 2011



EETT Competitive Grant Final Report FY 11

I. Summary of grant.

The EETT Competitive Grant awarded to Clark County School District for 2010-2011 was based on the need for increased technology use in classrooms, leading to student achievement. There are three projects funded, each with specific goals related to identified needs. The evaluation of this grant was modified to reflect the shrinkage in funds. The EETT grant funded professional development for 328 teachers overall. The remainder of this report will provide details for the nine items based on the progress report completed during the project.

II. Summary based on project goals and objectives including impact on student achievement.

Project 1: Formative Assessment

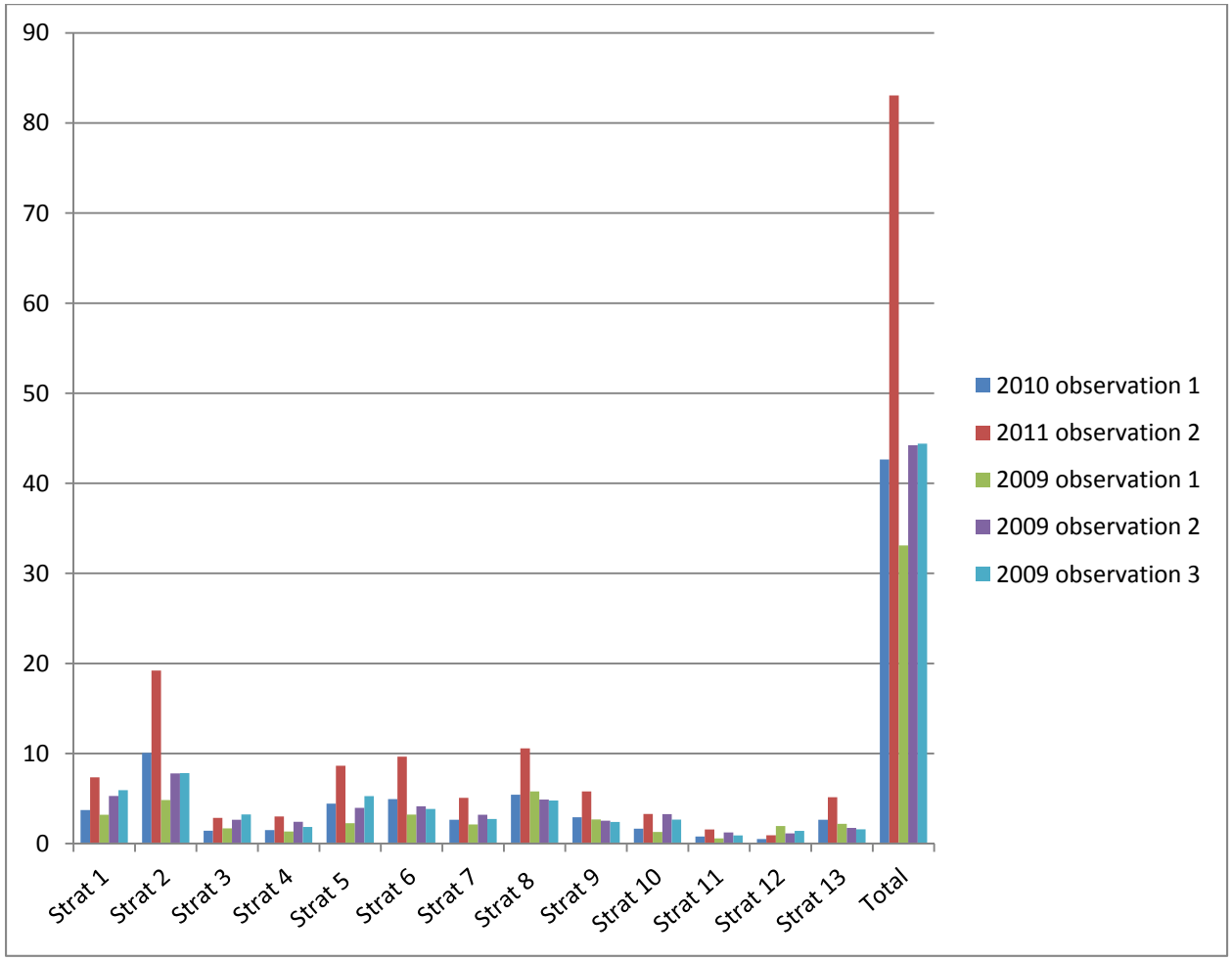
The Formative Assessment Project was designed to have students more involved in answering questions, increasing formative assessment, and using different kinds of formative assessments. Activities for the grant are below.

Activity	Measurement	Progress
PD on types of formative assessment for 35 elementary teachers – 12 hours	Teacher knowledge of formative assessment Participation in PD Student mathematics grades	5 schools identified; 53 teachers Equipment purchased through alternative funds PD provided to ECSs See chart below for the PD provided to teachers*
Clickers used in classrooms	Classroom visits	Baseline, mid-year, final visits made
Slates used in classrooms	Classroom visits	Baseline, mid-year, final visits made
Online practice tests used by students	Records from practice test system Student grades	Software purchased Online forum provided

The number of students and teachers impacted by this project in the grant are:

School	Hours of PD	# of Teachers	# of Students
Vegas Verdes	3	8	217
May	5	9	259
Roberts	3	9	243
Miller	3	8	216
Morrow	3	10	274
Hancock	5.5	9	229
Total	-	53	1438

In the following table, the student engagement strategies that were taught are recorded by observation averages. Note that there is a comparison by observation number for both years.



The strategies being tracked for observation are as follows:

Strategy 1 - Wait time
Strategy 2 - open ended questions
Strategy 3 - encourage peer comments
Strategy 4 - pair/group consensus
Strategy 5 - provide reasoning/justification
Strategy 6 - feedback descriptive
Strategy 7 - feedback on critical aspects
Strategy 8 - feedback clear/direct
Strategy 9 - feedback constructive/realistic
Strategy 10 - self-assessment
Strategy 11 - peer-assessment
Strategy 12 - reference how progress judged
Strategy 13 - reference learning goals

A further component of project one was access to Quia. Seventy-five Quia accounts had been activated and used this year. Some of the accounts are shared at a school, so the actual number of teachers may be higher. A survey was sent out in Spring 2011 (See Appendix A). Each of the 2009-2010 schools in this project had developed a follow-up plan that was to be implemented during the second semester of this school year. Thirty-three teachers participated in the implementation. The Science department consulted and collaborated with the Technology department to verify that the follow-up plans were followed. The survey results showed that over 60% of teachers' students used the practice proficiency exams in Quia. Also, 59% of teachers indicated the training and/or training materials effectively assisted them in using the science proficiency exam with their students.

Benchmarks Not Reached

The number of hours of PD for teachers using classroom response systems was lower than expected. Teachers were confident after the training provided in year one.

Project 2: Online Professional Development

The OPD project is designed to provide convenient and relevant professional development for teachers.

Activity	Measurement	Progress
Develop 10 online courses	# Courses developed	We have ten new courses that have been developed.
Teach 10 online courses	# Courses taught Survey participants regarding course applicability Participants will identify an example of increased student achievement related to the course	A follow-up survey was sent out immediately or up to one month after class completion to see how the training is affecting students.

Sample descriptions of trainings for the instructors

- Introduction to Moodle Training

  This was an introduction to the Moodle Learning Management System. Participants had an opportunity to create discussion forums and assignments, as well as learn best practices for creating online content.
- PDE 3011 - Introduction to Moodle LMS

  This course was designed to introduce participants to online instruction and course development using the Moodle Learning Management System. Participants learned about philosophy and best practices related to online instruction while learning to use the tools in Moodle to develop online instructional content.

Results of the survey compiled for the entire school year are in Appendix A. A few highlights are worth mentioning. Survey respondents indicated that by majority they implemented two or more

strategies learned in their course(s). A majority of respondents also rated students in majority of being improved or excellent engagement in class after implementation of the strategies. Finally, also by majority, the respondents indicated that implementation was easy or very easy.
Benchmarks Not Reached
None.

Project 3: Technology Integration in Mathematics

This project was designed to improve student mathematics achievement through the use of technology.

Activity	Measurement	Progress
PD on calculator use	Survey participants Teachers identify examples of calculator use leading to achievement	Teachers participated in PD
Online forum to support calculator use	Document forum	Forum active
PD on FASTT Math intervention	Document intervention use Document student fluency rates	Teachers participated in PD
Online forum to support FASTT Math intervention	Document forum	Forum active

- # Teachers in calculator training – 37 teachers attended the training.
- Survey results – calculator training – A follow-up survey was sent out one month after class completion to see how the training is impacting students.
- Follow-up on teachers documenting use and examples – A follow-up survey was sent out one month after class completion to see how the training is impacting students. There were narrative components for teachers to document use and examples for reporting.

In Clark County School District, 41 schools have FASTT Math, with the professional development supported through Competitive EETT. Based on staff participation of 100 elementary teachers and 6 middle school teachers, 3000 elementary students have been impacted and 900 middle school students have been impacted by the FASTT Math training. Since July 1, 2010, 27 schools have participated in professional development. Only 7 of the 41 schools are new to using the program.

Of the 37 schools using the program, the number of students who logged in rose from 9,313 to 15,093 from January 2011 to June 2011 (61% increase). Of the students who logged in, the number who continued using the program at least 3 times a week rose from 2,934 to 3,652 (25% increase).

All CPD FasttMath schools were provided with training documents for ECSs and teachers to assist the ECS with providing their own on-site training for using the software and support materials. All support materials were housed in a conference on InterAct for easy access by

teachers, ECSs, and administrators. Student and teacher accounts were set up within the first few weeks of the school year and updated as requested throughout the school year. The following training events were provided to FasttMath schools in the fall of 2010. In addition to these large group training events, one-on-one training was provided to ECSs at their request.

FasttMath System Training (for ECSs and Administrators)	one hour online via Centra	09-14-2010	9:30 am 1:30 pm
FasttMath Teacher Training (for up to 2 lead teachers at each site)	one hour online via Centra	09-23-2010	7:30 am 3:30 pm
FasttMath Teacher Training (for all 3rd-5th grade teachers at each site)	one hour online via Centra	10-08-2010	9:30 am 11:00 am 1:00 pm
FasttMath System Training (for ECSs and Administrators)	one hour online via Centra	11-04-2010	9:30 am
FasttMath Teacher Training (for all 3rd-5th grade teachers at Dooley ES)	one hour in person	10-04-2010	2:15 pm

The following schools were recorded with little to no activity as of the beginning of June: Bonner ES (Zero Students Participated), Goolsby ES (Zero Students Participated), Heard ES (77 Students Participated), Kelly ES (2 Students Participated).

Benchmarks Not Reached:

Four schools have not yet used the program with their students. Administrators and ECSs were contacted to respond with plans to use the program during second semester and additional professional development would be provided, if needed. According to the sites, the program was not used as planned due to having too many programs at schools to implement across the whole of the curriculum areas. Lack of implementation was an obstacle and it was not possible to offer the program to another school(s) due to the late time of the school year.

III. List scheduled activities/objectives/milestones not accomplished during this period. Define problems and solutions.

- See summary of progress section.

IV. Number of staff who have directly benefited from the project to date; specify by public and nonpublic schools.

- See summary of progress section.

V. Number of students who have directly benefited from the project to date; specify by public and nonpublic schools.

- See summary of progress section.

VI. Services/resources received by nonpublic schools being served by the grant.

- Non-public schools within Clark County School District were provided with information on available funds, as well as instructions for accessing those funds.

VII. Project evaluation results to date.

- See summary of progress section.

VIII. Budget narrative detailing spending to date. Were grant funds spent according to grant projections? If not, please explain.

As of June 30, 2011- the 981-EETT Competitive grant budget was as follows:

Project 1- The Formative Assessment Project was designed to have students more involved in answering questions, increasing formative assessment, and using different kinds of formative assessments.	Spending completed either according to schedule or as approved through amendments.
Project 2- The Online Professional Development project was designed to provide convenient and relevant professional development for teachers.	Spending completed either according to schedule or as approved through amendments.
Project 3- The Technology Integration in Mathematics project was designed to improve student mathematics achievement through the use of technology.	Spending completed either according to schedule or as approved through amendments.
Allocated $ 75,515.29	
Spent $ 74,285.17	
Balance $ 1,230.12	

**All budget totals are as of September 28, 2011

Professional development groundwork was completed by schools during the school year.

IX. Will 100% of grant funds be spent by the end of the grant period? Extensions and carryover for each fiscal year will not be granted.

- All of the grant funds were used according to grant projections.

Appendix A

I have activated and used my Quia account during the 2010-2011 school year.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		2	5.9	5.9	5.9
	no	8	23.5	23.5	29.4
	yes	23	67.6	67.6	97.1
	yes, no	1	2.9	2.9	100.0
	Total	34	100.0	100.0	

My students have used the practice proficiency exams available via Quia.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		2	5.9	5.9	5.9
	no	10	29.4	29.4	35.3
	yes	22	64.7	64.7	100.0
	Total	34	100.0	100.0	

How many students have accessed and used the practice proficiency exam from Quia?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	5	14.7	18.5	18.5
	5	1	2.9	3.7	22.2
	10	1	2.9	3.7	25.9
	15	2	5.9	7.4	33.3
	20	1	2.9	3.7	37.0
	25	1	2.9	3.7	40.7
	30	3	8.8	11.1	51.9
	40	1	2.9	3.7	55.6
	43	1	2.9	3.7	59.3
	45	1	2.9	3.7	63.0
	60	1	2.9	3.7	66.7
	70	1	2.9	3.7	70.4
	90	2	5.9	7.4	77.8
	100	2	5.9	7.4	85.2
	110	1	2.9	3.7	88.9
	150	1	2.9	3.7	92.6
	160	2	5.9	7.4	100.0
	Total	27	79.4	100.0	
Missing	System	7	20.6		
Total		34	100.0		

Using Quia has allowed me to use technology in ways that will improve my students' performance in science.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		6	17.6	17.6	17.6
	Agree	11	32.4	32.4	50.0
	Disagree	5	14.7	14.7	64.7
	Strongly Agree	12	35.3	35.3	100.0
	Total	34	100.0	100.0	

I attended training or accessed training materials that assisted me with using the practice exams via Quia.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		4	11.8	11.8	11.8
	no	13	38.2	38.2	50.0
	yes	17	50.0	50.0	100.0
	Total	34	100.0	100.0	

How often do your students access the practice materials on Quia?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		3	8.8	8.8	8.8
	2-5 times to date	10	29.4	29.4	38.2
	At least once this school year	4	11.8	11.8	50.0
	more than 5 times to	4	11.8	11.8	61.8
	more than 5 times to date	4	11.8	11.8	73.5
	Other	9	26.5	26.5	100.0
	Total	34	100.0	100.0	

The training and/ or training materials effectively assisted me in using the science proficiency exam with my students.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		10	29.4	29.4	29.4
	Agree	11	32.4	32.4	61.8
	Disagree	3	8.8	8.8	70.6
	Strongly Agree	9	26.5	26.5	97.1
	Strongly Disagree	1	2.9	2.9	100.0
	Total	34	100.0	100.0	

The evaluation results from the practice science proficiency were helpful for both teacher and students with identifying areas of need.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		10	29.4	29.4	29.4
	Agree	10	29.4	29.4	58.8
	Disagree	3	8.8	8.8	67.6
	Strongly Agree	11	32.4	32.4	100.0
	Total	34	100.0	100.0	

Additional Comments

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		21	61.8	61.8	61.8
	"I plan to familiarize myself with Quia's other features.	1	2.9	2.9	64.7
	I am not teaching Science Foundations this year	1	2.9	2.9	67.6
	I am the lone science teadher at this alternative education (reform) school for boys grades 7-12. Long commute times (2.5 hr per day) prevent me from supporting before and after school activities, as	1	2.9	2.9	70.6
	I believe that Quia is a great resource, thank you.	1	2.9	2.9	73.5
	I regret that I was not able to have my students access Quia. However, it is a great tool for proficiency preparation. During the second semester, I plan to have my students access Quia. We will us	1	2.9	2.9	76.5
	I think this would be a more positive survey if I could get into the account. I am very happy with the Quia program. Please continue its use.	1	2.9	2.9	79.4

I use QUIA in my classroom and for tutoring. I have made vocab flashcards and quizes using quia and assign it as homework. Once you get the kids to buy in they do it on their own.	1	2.9	2.9	82.4
I used this last year, but didn't feel that the exam helped that much. this year i used all of the RPDP tests and the students didn't think that it helped them all that much. I used the exams as a t	1	2.9	2.9	85.3
It was difficult to answer this set of questions since I have not had the opportunity to access the Quia online learning tools for my students. However, I may try to use them in late February as part	1	2.9	2.9	88.2
Teaching all Biology classes this 2010-2011 school year. I do not have the need to use Quia.	1	2.9	2.9	91.2
Thank you!	1	2.9	2.9	94.1
This is really not applicable. I have not actually gone on Quia with my students, so I am unable to answer these questions. I would love to have training, so I may feel comfortable with the program.	1	2.9	2.9	97.1
This was not my account. I used the account of the Science Department Chair.	1	2.9	2.9	100.0
Total	34	100.0	100.0	

I feel the online practice proficiency exams serve as an effective preparation tool for my students.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		8	23.5	23.5	23.5
	Agree	9	26.5	26.5	50.0
	Disagree	2	5.9	5.9	55.9
	Strongly Agree	15	44.1	44.1	100.0
	Total	34	100.0	100.0	

Please list your school name

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		2	5.9	5.9	5.9
	Basic High school	1	2.9	2.9	8.8
	Bonanza	1	2.9	2.9	11.8
	Boulder City High School	1	2.9	2.9	14.7
	Cimarron-Memorial H.S.	1	2.9	2.9	17.6
	Cimarron Memorial	1	2.9	2.9	20.6
	Clark High	1	2.9	2.9	23.5
	Del Sol High School	1	2.9	2.9	26.5
	Desert Oasis	1	2.9	2.9	29.4
	ECTA	1	2.9	2.9	32.4
	Global Community HS	1	2.9	2.9	35.3
	Green Valley	1	2.9	2.9	38.2
	Homebound Services	1	2.9	2.9	41.2
	Indian Springs High School	1	2.9	2.9	44.1
	Jeffrey Behavior	1	2.9	2.9	47.1
	Jeffrey Behavioral	1	2.9	2.9	50.0
	Las Vegas High School	1	2.9	2.9	52.9
	Laughlin Jr/Sr High School	1	2.9	2.9	55.9
	Liberty High School	1	2.9	2.9	58.8
	LVHS	1	2.9	2.9	61.8
	Moapa Valley High Sc	1	2.9	2.9	64.7
	palo verde	2	5.9	5.9	70.6
	Rancho	2	5.9	5.9	76.5
	Shadow Ridge High School	1	2.9	2.9	79.4
	Shadow Ridge HS	1	2.9	2.9	82.4
	sierra vista	1	2.9	2.9	85.3
	southeast career tec	1	2.9	2.9	88.2
	Spring Mountain JRSR HS	1	2.9	2.9	91.2
	Sunrise Mountain H.S.	1	2.9	2.9	94.1
	Virtual High School	1	2.9	2.9	97.1
	West Career Tech Academy	1	2.9	2.9	100.0
	Total	34	100.0	100.0	

My students have taken advantage of the additional educational resources available in the Quia online learning environment.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		10	29.4	29.4	29.4
	Agree	9	26.5	26.5	55.9
	Disagree	7	20.6	20.6	76.5
	Strongly Agree	7	20.6	20.6	97.1
	Strongly Disagree	1	2.9	2.9	100.0
	Total	34	100.0	100.0	

Appendix B

Zoomerang Survey Results

EETT Grant Funded PDE Class Feedback 2001-2011

Response Status: Completes
Filter: No filter applied
Jun 13, 2011 2:51 PM PST

You recently completed a PDE class that was funded by the Enhancing Education through Technology (EETT) federal grant. The primary goal of this program is to improve student achievement through the use of technology in elementary and secondary schools. Thank you for your assistance in completing this survey.

1. How many strategies that you learned from the PDE class did you implement in your classroom instruction?		
0 strategies	9	8%
1 strategy	6	5%
2 strategies	32	28%
3 or more strategies	67	59%
Total	114	100%

2. Describe at least one strategy that you learned during class that was implemented in your instruction.

99 Responses

Respondent #	Response
1	VoiceThread- records and types the words you speak into a microphone
2	How to blog/create an interactive blog
3	Flashlight
4	Use of googledocs to collect information from a group and use of online tools including wordle and prezi to present information.
5	Colloboration with other subject areas.
6	I didn't finish the class.
7	powerpoints done by students for sharing
8	Funding for smartboards was cut--no boards, no implimentation
9	Smartboard
10	finding locations on Google Earth
11	Having students interact with the technology directly.
12	Storyboard

13 I'm not sure what class this was I'm being sent a survey for. A good idea would be to put the title of the class in the heading above the survey to jog memory. I'm sure I used strategies in whatever class it was.

14 Nothing yet. Next year

15 using surveys

16 The development of a student rubric for evaluating websites.

17 I learned how to use the Smart board and a lot its features.

18 I learned useful things to do with my SMARTboard which I use everyday!

19 printing script and changing it to font

20 Using phonology songs and fingerplays with the Smart Board

21 Since the class was for a tool that teachers use to plan, there isn't any strategies I have shared with my students.

22 Google Docs

23 I taught my students how to critically think about the the information obtained on the computer.

24 I am able to use the Smart Gallery to research for lessons to supplement by curriculum.

25 Flipcharts

26 creating a smartboard lesson to engage students

27 I experienced many different WEB 2.0 programs that can engage students to participate in classwork with the integration of technology.

28 Implemented a blog with students and used promethian flip charts in class as well as students created their own podcasts.

29 How to be specific in online research. What are some safeguards I could implement to make search safe for my students.

30 Including interactive lessons learned during a PDE class.

31 I attended several courses. 1. Made a powerpoint for class. 2. use the Smart Board daily for reading and math.3.Used the technology for centra to tune into a seminar for science.

32 In a behavior management training I learned how to set up an area in the classroom for "cool down" so that students can de escalated and reintegrate themselves back into the lesson.

33 I learned to use several 2.0 tools that i did not know existed.

34 I learned how to use the icons on the Smartnotebook program.

35 How to use technology more effectively in the classroom.

36 online Research

37 I have students working more on computers and streaming, and I am planning to use some blogging/virtual portfolios in the classroom next year. Also, I am less "fearful" of using technology.

38 Student engagement using interactive board.

39 Make lessons personal

40 How to design a page to fit my lesson.

41 The use of Edmodo

42 using photostory

43 I began using enduring ideas to help students find connections between their lives and art work, artists and the creation of their own art- rather than just jumping to a art project or just learning about an artist. Through class discussion and thoughtfully planned projects I feel that my student now find more meaning in our art projects as well as motivation and engagement.

44 Smart board presentations and interactive technology

45 Photostory

46 Vocabulary notebooks

47 This is a resend to complete a survey that I already completed. You did not mention the actual class with the resend. So I cant reference the class. Ive taken 4 classes.

48 I am using the smartboard to get the students to interact with their own learning daily. It's fun. I will use it at this time of year for a great review for the finals. The responders are great for me and for the students.

49 Including State Standards in lesson planning.

50 I learned about Enduring Ideas and implemented the focus of an art history activity toward personalization during the art process stage.

51 the smartboard application itself and how to make interactive lessons to totally engage students in lessons.

52 I used the GarageBand software in my Video Game class to show them how to create original music for their 4th quarter video game projects.

53 I made a lesson on smartboard. I attached a video along with a variety of ideas from class using the tools.

54 Better use of Powerpoint.

55 I do not have access to a smart board

56 Using the Photostory program for my students' space reports.

57 This was an art history class and added more knowledge and background to various art periods.

58 Google Sites

59 I used the ceramics skills I learned in my ceramics PDE class to teach ceramics class.

60 Use "magic pen" to focus attention. Use pull tabs to fill in blanks for part of speech or word choice

61 Creation of Smart Board lessons - resources and application of them - interactive student involvement with the lesson

62 Use powerpoints

63 Studying various artists on the internet by taking students to the computer lab and having them visit museum collections around the world to see ceramics and fine art.

64 proper website to provide for my students researching

65 I learned how to use technology manipulatives to enhance student learning. Various websites were introduced or found that allow students to use manipulatives to reinforce their math learning.

66 One strategy that I used was a warm up for factoring. The sheet has large x's for each problem. The top and bottom of the x has integer value. The student are to write numbers on the side of the x that when multiplied give the top number and when added together give the bottom number. It is good factoring practice.

67 I learned how to make a Webquest and a jeopardy game to acquire and review information with.

68 Using the Promethean Planet website.

69 I incorporated the use of internet so searches and wiki-spaces.

70 I am now able to use the smartboard to create interactive lessons for my first graders.

71 To use a theme that is familiar to the student's life.

72 I used the CCSD TV that was part of my online portfolio. Really easy and effective.

73 I learned how to: use a Smartboard, download lessons, create lessons for myself and to share.

74 creating a webquest

75 Smartboard tools using the camera and creating hotlinks to web via notebook.

76 I found several wikis that were relevant to the content I was teaching, and I shared information and the sites with my students.

77 making instruction more engaging

78 Use Smart Board for lesson planning

79 I am a retired teacher. I haven't had the opportunity to use these strategies.

80 i do not have a smartboard yet!

81 Using Web 2.0 tools in the classroom to promote collaborative learning.

82 Learning the color wheel.

83 How to use the smart board as a tool not just a board

84 Using reader's theater to teach about energy

85 The students entered correspondence through blogging. Providing constructive feedback to one another.

86 Smart board lesson making.

87 Having students investigate a subject or topic by using WebQuests.

88 Allowing students to use the paint bucket and also layering so that students can see an answer when they erase.

89 using computers more and having students link on a bubble map to share with students

90	I created a podcast project based on the strategies I learned using Garage Band as well as details on how to help students create effective narratives for podcasts.
91	I created a powerpoint presentation that i used to introduce an instructional unit.
92	use of wikis online to allow students to share ideas without fear of presentations in the classroom.
93	multi culture diversity
94	How to produce more effective lessons using the Smartboard. This included more student participation with the technology and the lesson on air pressure. Students were able to recall the standard taught and used the examples from the Smartboard lesson to support their reasoning.
95	Give students choices and teach responsibility. Meet their basic needs-power, belonging, fun for better classroom management.
96	How to implement differentiated instruction and how to work with children that might have dyslexia
97	Incorporation of technology into daily routine
98	Think Pair Share - I love this strategy because it allows my students a moment of reflection and then time to discuss their opinion or idea while getting that of another student.
99	I had no experience or training on the Smart Board and I had one in my classroom. I learned how create an evaluation quiz in the form of a game and I used that to evaluate student learning of vocabulary in class. I also learned how to create a student interactive lesson, and how to use the internet on my Smart Board.

3. Rate the student response to the instructional strategy that was implemented.

Less student engagement	1	1%
No noticable change in engagement	9	8%
Improved student engagment	48	44%
Excellent student engagement	52	47%
Total	110	100%

4. Comments?

39 Responses

Respondent #	Response
1	no
2	none
3	more creativity
4	Still developing them.
5	It didn't really change their actual engagement but made it easier for students who do not have programs like Word or PowerPoint complete their work from home as long as they had internet access. Plus it was less of a pain for everyone to not have a million flashdrives.
6	Very interactive, informative class!
7	It was immediate. The students were actively engaged and the quality of work was above average.
8	My students are learning how to research by narrowing down their search.

9	I intend to take more tech classes just to keep up.
10	We need more trainings like this. The atmosphere of the learning environment is crucial to managing behaviors.
11	Students love to share their own history with other students. They engaged in communication both visually and verbally.
12	They loved it!
13	They love it and every student is engaged.
14	My students look for the standard daily, take notes, and apply the skill after my focus lesson. Practice time for students to demonstrate the skill is helpful for my students to demonstrate they can perform.
15	There was a lot of work involved in this class. It was also very frustrating when my internet wouldn't let me listen and participate during one session. Luckily I was able to listen to the class and others comments on another day and time.
16	It is a program that if you don't continue to use it and make additional smartboard lessons, you will forget. continued use will help me get much better!
17	This was an excellent class. Very informative.
18	No lesson on the smartboard was giving
19	The students LOVED that so much technology was used.
20	The students seemed to love all the new assignments I was able to teach because of the PDE courses.
21	none
22	Students want to go to other sites than those that have been assigned.
23	Factoring is hard for many students, this practice makes it a little easier for them.
24	Please fund more of these!
25	It is one of the most useful tools to keep the students attention.
26	I feel next year student engagement will increase as they create online portfolios.
27	I teach Intermediate Autism. I have students that range from non-verbal pre-k level to fourth grade academics. Using the smart board I am able to engage the ENTIRE group for lessons. Even when a student does not understand the level I am presenting they wait their turn for questions at their level. The anticipation of actively using the smartboard improves attention and behavior, thus increasing learning.
28	This definitely enhanced my curriculum content and delivery.
29	Students love the use of technology in the classroom!
30	i do not have a smartboard yet!
31	students enjoy learning through the smart board
32	I found the students excitement to be rewarding. It has directed me to implement more types of technological activities in the classroom.
33	I took the class to learn how to make WebQuests for my students. I was very pleased with the results.
34	They loved it, students love technology anyway and now even the teacher knew what to do

35 Students really enjoyed working with the software to create podcasts about the literature they studied in class. The hands on nature of the project was the most enjoyable aspect of the lesson.

36 Students seem to like being able to access the technology on their own.

37 took a lot of time and some students didn't have access to the internet this year.

38 It works really well in my art room where time is limited. I used to just have them raise their hands and I'd call on them which only allows enough time for three or four students to speak. This strategy allows everyone to be engaged and the kids really enjoy that.

39 The students were excited to take a quiz on vocabulary using a game that I created for my Smart Board. I used this as an evaluation tool for my next learning objective to drive student learning in my classroom.

5. Rate the ease of implementation of the identified strategy in your classroom instruction.		
Very difficult	6	5%
Somewhat difficult	14	13%
Easy	62	56%
Very Easy	29	26%
Total	111	100%

6. Please describe the obstacles you encountered if you answered that it was very difficult or somewhat difficult to implement the strategy(s).

48 Responses

Respondent #	Response
1	None
2	I didn't finish the course because there was too much work for just 1 credit...it wasn't organized in a way that I could follow...it ran over spring break...and all the work wasn't able to be done at my own pace...we were given snippets here and there to do and couldn't work ahead so I missed the "time" I could've worked on it and therefore had to resign from finishing the course. I also didn't like the two teacher, one course format...it made it difficult to know which one to go to when I had a question.
3	getting things downloaded onto the google docs without having instructions
4	getting the sync's done for the new apps
5	No obstacles
6	My obstacle was room design and equipment arrangement. The actually creating lessons and using the board was easy.
7	Implementing and using the correct technological connections/instrumentation to use within several classrooms that I teach in.
8	Students who have no internet access from home.
9	NA
10	It takes too long to create the smartboard program. PowerPoint is much easier to use.

11 Many of the Web 2.0 strategies were new to me and I was unaware of the free options available to me as a teacher.

12 The promethian flip charts were a little difficult to edit but once I became familiar with it, it was easier.

13 Not all students are able to comprehend because of few students with second language issues.

14 Centra was the most difficult. Parts of the Smart Board are hard to remember if I don't refresh often.

15 Cabinet arrangement, student compliance and staff compliance.

16 Not enough computers in class for everyone.

17 Finding the time to fit the lessons in and the money to buy more technology.

18 Too many students to take to the computer lab.

19 Like to answer anyway...i love to write lessons. i had a blast implementing Enduring Ideas to my 6th graders. Love this was of thinking!

20 had trouble uploading to ccsd.tv. was never able to.

21 Time. Some projects take much longer when I take the time to relate them to an enduring idea. There is also more planning involved.

22 tv.ccsd.net sometimes takes forever to download items on

23 How cow- there are a lot of steps for the responders- I had to make out a index card to follow and a card for trouble shooting. Also to create all I want on the smart board takes HOURS. Once I get good at it, I'm sure it will take less time.

24 I had learned to follow the Gradual Release Model of teaching and I enjoy presenting a lesson and having students practice the skills. Students are understanding that their coming to class is related to their next level of education.

25 No access to a smartboard

26 We had some problems loading our program. Brad dissler was excellent in helping.

27 The class was not about teaching strategies. It was more about history and background information of art periods.

28 Working in groups that never met face to face was hard because some people did not check their email

29 The implementation was almost instant.

30 none

31 Getting the use of computers for every student.

32 my class is not oriented to long periods of research, etc., as it is a performance oriented class - music

33 None

34 Becoming familiar with creating my own flipchart.

35 None!!!

36 Just navigating at first was slow going for me as I do not use many of these functions in my work.

37 My white board is still not installed. Once it's in, I'll be ready to go!

38 Very time consuming to make own Smart Board lesson plans

39 I do not have a smartboard yet!

40 I was already using now I use it better

41 none

42 I was frustrated setting things up. I didn't understand how things would work. Taking the course on-line limited the one-to-one interaction with others. I learn by example not by trial and error. That was the biggest obstacle for me.

43 It was not difficult, but the directions and sequencing on the WebQuest site could have been more clear. It was frustrating at first but I figured it out.

44 Making sure 32 students understood how to make a live link work and where and how to utilize it.

45 It was difficult for students to have a quiet place for them to record their narratives. Because the software was MAC, only a few students could work on the assignment outside of class.

46 The ccsd filter would not let me access my work from the classes

47 internet access, student receptiveness to work online at home, apathy

48 n/a

Washoe County School District

Enhancing Education Through Technology 2010-2011

Evaluation Report
Public Policy, Accountability & Assessment
Washoe County School District
August 2011

Executive Summary

This report describes findings from the 2010-2011 evaluation of the second year of the **Enhancing Education Through Technology (EETT)** program. Guided by research that indicates today's students are more engaged in lessons that integrate 21st Century technologies, the EETT program supplied pilot classrooms with a wide array of interactive technologies designed to enhance student engagement and improve teaching practices. Teachers received smart whiteboards, voting devices or "clicker" technologies, document cameras, graphic tablets and pens, and software (see Appendix for pictures of each of the devices). Additionally, teachers were provided targeted professional development to integrate these technologies into their curriculum and instructional practices.

The overarching goal of the EETT program is to improve student achievement through the integration of educational technologies in the classroom. In support of this goal, two objectives for the Year 2 evaluation are identified:

- Ensure that 95% of students are engaged in course instruction as measured by classroom observations.
- Ensure that 100% of EETT teachers identify their classrooms as more interactive and engaging as measured by a self-report end-of-year survey.

A second goal of the EETT program is to reduce the digital divide between teachers and students. The objectives relating to this goal for the Year 2 evaluation include:

- Ensure that EETT teachers receive 16 hours of professional development specific to technology integration.
- Improve teachers' proficiency in how to integrate interactive technologies into standard teaching practices.
- Integrate technology with curriculum, instruction, and professional development.

A formative evaluation of the EETT initiative was conducted. Evidence was collected using three methods: (1) classroom observations; (2) content analyses of teacher reflection statements; and (3) and an end of year survey.

Key Findings

Overall, teachers were pleased with the program and enjoyed learning about and integrating the new technologies into their classrooms. Most teachers believed the training they received was sufficient. Many teachers believed that the new classroom technology:

- Enhanced their ability to teach.
- Enhanced their ability to monitor students' progress.
- Became easier to integrate into their classroom instruction with increased experience.

- Increased student engagement and interest in the lesson material.

The challenges teachers identified for future implementation and scaling up of the program include:

- Time and resources required to integrate technologies into lesson plans.
- Desire for more intensive, one-on-one training to ensure teacher competency.
- Wide variation in teachers' proficiency with the technology, even after training.

In spite of challenges, teachers supported the Districts' continued investment in the EETT program and were optimistic about the potential for technology to enhance students' learning experiences.

Goal 1: *The overarching goal of the EETT program is to improve student achievement through the integration of educational technologies in the classroom.*	The collective evidence suggests the EETT program achieved progress toward meeting this goal.		
	Measure	**Yes**	**No**
Objective: Ensure that 95% of students are engaged in course instruction as measured by classroom observations.	Observation: Reflection: End Survey:	 ✓	✓ ✓
Objective: Ensure that 100% of EETT teachers identify their classrooms as more interactive and engaging as measured by a self-report end-of-year survey.	 Reflection: End Survey:	 ✓ ✓	

Goal 2: *A second goal of the EETT program is to reduce the digital divide between teachers and students.*	The collective evidence suggests the EETT program achieved progress toward meeting this goal.		
	Measure	**Yes**	**No**
Objective: Ensure that EETT teachers receive 16 hours of professional development specific to technology integration.	*Data not available at the time of report.*		
Objective: Improve teachers' proficiency in how to integrate interactive technologies into standard teaching practices.	Observation: Reflection: End Survey:	 ✓ ✓	✓
Objective: Integrate technology with curriculum, instruction, and professional development.	Observation: Reflection: End Survey:	✓ ✓ ✓	

Program Background

Millennial Learners live in a technology-driven world in which they consistently multi-task via interactive tools in a stimulating environment. In a study of 29,000 university students, 99% of college freshmen report that that they owned a computer and use technology as both an academic tool and a social networking device (ECAR, 2006). A 2009 Washoe County School District survey found that 93% of surveyed high school students believe that technology makes classes more interesting. Additionally, students with strong technological skill sets are more apt to be successful in school. Integrating technology into the classroom has the potential to dramatically increase students' engagement in lessons and provide them with opportunities to develop the technological skills that are increasingly valued in today's job market.

Increasing student engagement is vital to ensuring that students receive a complete education and graduate career or college ready and WCSD has listed increasing student engagement and interest in classroom material as one of its most critical goals. In WCSD, 22% of students do not graduate from high school. According to the California Dropout Research Project, the primary reason students drop-out is because classes do not hold their attention. In a 2005 National Governor's Association report, 81% of dropouts state that teachers and interesting class material would improve their chances of staying in school. Thus, adding interactive technologies into classrooms may help increase student engagement and student interest in the material. In addition, many new classroom technologies enhance teachers' capacity to assess students' progress throughout instruction by providing them with quick and reliable data on student understanding. Thus, many new classroom technologies may enable teachers to make adjustments to their instruction to better meet student needs and more quickly identify students who are struggling with the material.

Funded by a grant from the Nevada Department of Education, the **Enhancing Education Through Technology (EETT)** program aims to improve student achievement by supplying teachers with a wide array of classroom technologies designed to enhance student learning. In its second year, the EETT program supplied 15 teachers in Washoe, Douglas, and Lyon County school districts with smart whiteboards, voting devices, document cameras, graphic tablets and pens, and software required to link these devices to a computer (see Appendix for pictures of each of the devices).

Six teachers from the Washoe County School District, five teachers from Douglas County School District, and four teachers from Lyon County School District participated in the pilot of the EETT program. Eight teachers taught elementary school, five teachers taught middle school, and two teachers taught high school. Mike Martindale served as project manager and provided technological assistance to each teacher as well as advised them on how to integrate the new technologies in their teaching practices. Joe Elcano, WCSD Director of Education Technology, supervised program implementation and worked with teachers on how to utilize the new technology to impact classroom instruction.

This report provides an overview of the program and results from a comprehensive evaluation of the formative outcomes of this new technology initiative. The evaluation sought to assess

whether integrating technology into the classroom would increase student engagement, improve teaching practices, and enhance student learning.

Program Goals and Objectives

The overarching goal of the EETT program is to improve student achievement through the integration of educational technologies in the classroom. In support of this goal, two objectives for the Year 2 evaluation are identified:

- Ensure that 95% of students are engaged in course instruction as measured by classroom observations.
- Ensure that 100% of EETT teachers identify their classrooms as more interactive and engaging as measured by a self-report end-of-year survey.

A second goal of the EETT program is to reduce the digital divide between teachers and students. The objectives relating to this goal for the Year 2 evaluation include:

- Ensure that EETT teachers receive 16 hours of professional development specific to technology integration.
- Improve teachers' proficiency in how to integrate interactive technologies into standard teaching practices.
- Integrate technology with curriculum, instruction, and professional development.

The goals and objectives outlined above represent a substantive step in WCSD's ongoing campaign to provide an enriching educational experience that prepares all graduates for further college or career options. Incorporating and using technology in the classroom is especially important as new technologies continually emerge. Increased exposure to technology in the classroom provides students an opportunity to develop the necessary skills to make them competitive candidates for future academic and professional careers.

Evaluation Approach

The Year 2 evaluation of the EETT program was designed to assess evidence of progress toward meeting the goals and objectives of the EETT program. The guiding evaluation questions for this project focused on three key areas: (1) implementation and perceptions of EETT; (2) impact of EETT on student engagement; (3) impact of EETT on teachers' classroom instruction.

Key Evaluation Questions for EETT Program

- *What are the strengths and barriers to implementation?* What is the overall value teachers place on the integration of technology in the classroom? What additional support, if any, would maximize teacher and student performance outcomes?
- *What is the impact of technology on student engagement?* Does the technology increase students' engagement in the material? Does the technology enable more to participate in classroom discussion?
- *What is the impact of integration of technology on classroom instruction?* Are teachers using the information from the Voting Response Units (VRUs; see Appendix) to drive instruction? Do VRU's enhance teacher's monitoring of students' achievement? Are student deficits identified earlier as a result of increased technology integration?

Data Sources

Three sources of data were collected to assess formative outcomes of EETT's second year of implementation:

1. Classroom Observations.

Two rounds of classroom observations were conducted to secure evidence of the level by which technology had been integrated into classroom instruction. Information collected through the observations was used to adapt professional development and coaching for each individual teacher that was observed.

2. Online Teacher Reflection Sessions.

Teachers participated in five online reflection sessions. In each session teachers were asked to provide feedback on the strengths and challenges associated with integrating student response devices into their instructional methods. A content analysis of the teacher reflections provided process data and insight into the perception of the teachers as they progressed through the program.

3. End-of-Year Teacher Surveys.

A 27-item online survey was administered to 15 teachers. The survey included quantitative and open-ended items related to:

a) teacher's perceptions of how technology had affected student engagement and their teaching practices;
b) whether professional development on how to use technology had improved their teaching practices;
c) whether the technology had improved their efficacy in identifying students who might be struggling with instructional material.

Classroom Observations

Two rounds of 40- minute classroom observations were conducted by the EETT professional development instructor to determine how technology impacted teaching practices over time. The first round of classroom observations was conducted from May 17 to May 31, 2011 with nine teachers. The second round of observations was conducted from June 1 to July 3, 2011 with six teachers.

Classroom observations were conducted to: (1) assess teachers' proficiency in using classroom technology; (2) understand how the technology impacted teacher-student interactions; (3) understand how teachers' utilization of the technology changed over time; (4) gauge the impact of technology on student engagement in the classroom; and (5) understand how frequently teachers used monitoring devices to assess students' understanding of the material.

- **Teacher proficiency using technology.** During classroom observations, the instructor rated teachers' level of proficiency in using the interactive whiteboard system on a 5-point scale with 1 = novice, 2 = somewhat proficient, 3 = proficient, 4 = mostly proficient, and 5 = highly proficient. Although it was expected that teachers would increase their technology proficiency between the first and second observations, some teachers who were initially rated as "highly proficient" in the first observation were later rated as "mostly proficient" in the second observation. However, the two teachers who were initially rated at the "novice" or "somewhat proficient" level did increase to proficient status during the second observation.

- **Impact of technology on teacher-student interaction.** Teachers and students were observed to determine how the classroom technology affected the frequency and quality of interactions between teachers and students. It was expected that as teachers learned how to incorporate interactive whiteboards into the classroom, teacher-student interaction would increase. From first to second observation, teachers spent more time talking when using the interactive white boards.

- **Teacher utilization of technology over time.** Teachers were rated on the level technology was integrated into their lessons. It was expected that over time, teachers would increase their usage of digital resources in the classroom. Teachers decreased their use of digital resources by 45%

- **Student engagement.** Students were observed to assess whether technology had increased engagement in the lesson material. It was expected that over time the use of interactive whiteboards would increase student engagement. As expected, student engagement did increase from below 80% to 90%.

- **Teacher's utilization of response devices to assess student understanding of material.** Response devices were placed in the classrooms to provide the teachers with real-time feedback on how well their students understood the material. Teachers were expected to increase their use of the response devices for ongoing formative assessments of students' understanding. From the first to the second observation, teachers reduced their use of response devices in the classroom and did not appear to regularly monitor student progress using the new technology.

Classroom Observation Summary of Findings

- Students became more engaged with classroom instruction when new technology was used.
- Teacher's knowledge and understanding of the new technologies did not increase over time, nor did teachers increase their use of the technology for ongoing assessments of student understanding.[1]

[1] First and second observations were conducted only a few weeks apart. Meaningful increases in teachers' proficiency and integration in using the classroom technology likely requires more than two weeks to develop.

Teacher Reflection Sessions

Feedback from teachers on their experiences using student response devices was elicited through five one-hour online reflection sessions from February to June of 2011. During the reflection sessions, teachers were prompted with open-ended questions to reflect on the interim strengths and weaknesses of the project. At each session, teachers were asked to respond to three to seven questions and post their reflections in an open, online forum visible to other teachers.

The purpose of the teacher reflections was to facilitate communication among teachers about their experiences using the technology and provide a forum to address teachers' questions and concerns about the implementation of the technology in their classrooms.

A content analysis of teacher reflections revealed several themes related to the program processes and participant satisfaction with the program. Across all five of the reflection sessions, general themes included:

- Student understanding
- Student engagement and participation
- Complexity of technology
- Appropriateness of technology
- Teacher morale

The five themes are explored within the following reviews of the five reflection sessions. Each session is discussed independent of the others to demonstrate change in teacher attitudes over time as the program progressed.

First reflection. Teachers had the technology equipment in their classrooms for about a month prior to the initial reflection session. Teachers were asked how their preparation, planning, and instruction had changed after having received the new equipment. Teachers were asked to think about the following questions and to address them in their reflections:

- How are you using the technology (document camera, ActivExpressions, ActivSlate, dual pens)?
- How do you plan/prepare for lessons given that you now have this technology (have they become more interactive/engaging)?
- How are your classroom activities different with the new equipment?
- Have you noticed increased student engagement?
- If you have collected some data, how have you used it to inform instruction?

In the reflections, several teachers discussed the difficulty they had understanding and using the technology in the beginning. For example, one teacher wrote:

"I was a little frustrated as kids would hit the wrong button and then let me know that that wasn't what they meant to input. Not sure how to manage this easily as then the data wasn't accurate."

Teachers also discussed how their lack of expertise using the technology appeared to lengthen the time required to use the technology:

"On the planning end of using the expressions, I have found it time consuming. The initial amount of preparation of flipcharts and questions has to be very thoughtful and planned out. Use of the Sub Day will be VERY HELPFUL."

Teachers had more favorable opinions of the ActivExpressions or 'clickers,' with many teachers noting that they increased student engagement and enjoyment of the lessons:

"The students really enjoy working with the new equipment. When we use the ActivExpressions the students are all engaged. I am having a hard time turning off the voting session because the ones that are the last to respond are the ones that I need to see how they respond."

Teachers also discussed their use of bar graphs to track student understanding and many believed the technology had helped them identify when students were struggling to learn the material.

Second reflection. In the second reflection, teachers were asked to think about the impact the technology had on teaching and learning processes in their classroom. They were asked to address the following questions in their reflections:

- How do the devices help make instruction (teaching and learning) more effective?
- Have the devices helped you integrate assessment more effectively?
- How are the devices a barrier to integrating assessment?
- As you have learned more about the devices has your use of them during instruction increased, plateaued or decreased? Why?
- Have you been using some of the formative data generated from the devices to adjust objectives, plans and/or student placement?

Teachers again mentioned that learning the technology was time-consuming. Several teachers still did not feel proficient using the technology and needed to spend extra time testing it before they could effectively utilize it in class. For example, one teacher wrote:

"Creating the flipcharts is time consuming. And sometimes waiting for all your students to answer a question is also a time drain. I find that as much as I like getting the feedback, it doesn't allow me to get through as much of my lesson."

Some teachers used the devices for simpler tasks, generating classroom discussion with simple yes/no and Likert-style questions. Other teachers suggested spacing assessments out more effectively or using the assessments less frequently to reduce the amount of time teachers spent waiting for student responses.

The more teachers used the technology, the more proficient they felt integrating it into their lessons. Most teachers seemed to believe that the technology had increased student engagement and provided them with more feedback on student understanding. For example, a teacher wrote:

> ***"Using the devices gives you clear information about who gets what in your lesson. You also get 100% participation/engagement. Results give you a starting point for discussion with your students as well as immediate information on whether to move on or remediate a concept."***

Third reflection. By the third reflection, teachers were expected to have begun planning ahead for a classroom activity in which they could assess their students using the new technology. All teachers were asked to pick a benchmark (e.g., ActivExpression quiz, pre-test, Map score) and then monitor their students' progress with the ActivExpressions during instructions. To help teachers generate ideas for their classroom activity, teachers were asked to reflect on the following questions:

- What content will you focus on?
- How long will you study the class (one week, two weeks, etc)?
- How many interim assessments do you plan to conduct before the summative assessment?

Teachers discussed a variety of plans to integrate the technology into their teaching to better monitor student progress. As one teacher wrote:

> ***"I created assessment questions in each of my geometry unit lessons…. I will use data from one of the first lessons in this unit that assesses the properties of polygons, the lesson on using and applying area formulas, the lesson on the area of circles and again the properties of polygons, and then from a summary assessment that I used as a review before the unit test."***

Teachers were generally positive about their experiences using the ActivExpression clickers and many had already developed ways of structuring assessments to better monitor students' individual progress. For example, some teachers used a pre-test to determine a baseline level of understanding which they then used to track changes in results over the course of the lesson:

> ***"I created my first self-paced ActivExpression tests for my Muslims unit. Students will start by taking a pre-test using the ActivExpression devices. They will not see their results, but I will be able to use this data to target a few students from my 2nd period class."***

Fourth reflection. In the fourth reflection, teachers were asked to upload data online that showed the progress of their students from the classroom activity described in the third reflection. Teachers were then asked to reflect on the following questions:

- Did the data help you identify students that needed specific intervention?
- How did you use the data to adjust instruction to benefit your students?
    - What were your specific interventions?
- Did the students show progress? Did they meet their goals?

Several teachers mentioned feeling frustrated when the technology did not function as they had expected, particularly when fixing the technology took time away from lesson instruction. For example, one teacher wrote:

> ***"Turns out the only data saved was from two students in one class period. I have no idea how I managed to lose the data for 90+ other students in three other science classes. Michael was unable to figure it out either. Further reason that I don't have the time to really utilize this technology at this time."***

In spite of some frustrations, many teachers believed that having the ability to monitor student progress with concrete data helped them better identify struggling students and make appropriate adjustments to the curriculum or lesson plan.

Fifth reflection. In the fifth reflection, teachers were asked to record their summative reflections on the project and process to implement it. Teachers were asked to reflect on the following questions:

- Do you think this was a successful project? Why?
- Will you continue to plan for and imbed formative and summative assessment in the lessons you present?
    - What are benefits (instructional or otherwise) that you have experienced through this project?
    - What are some barriers that will make this difficult?
- How do you feel the professional development sessions supported or failed to support the project?
    - What are some positives?
    - What are some areas for improvement?

During final reflections, teachers were asked to assess the overall strengths and weaknesses of the EETT technologies. In general, teachers believed that the new technologies had greatly

increased student engagement, and allowed them to generate immediate data on student progress and understanding which enabled them to make adjustments to their lessons more easily. As one teacher described:

> ***"Benefits: immediate feedback, extrapolation of results to enhance teaching and learning, active participation, and fun interaction."***

Challenges to implementation were again identified:

> ***"I felt like I was cheated out of fully participating in the Cadre due to my computer and technological related issues. I love having access to the latest and greatest technology and think it is invaluable to put said technology into my students' hands, however, not being able to use it was frustrating. It was like looking at a Christmas present all year long and being told you couldn't open it until Santa showed up ...only to discover there is no Santa. I want a chance to do it all over."***

Suggestions for future improvements included more training with the technology prior to use. Plans for future uses of technology seemed to center around fully integrating and using the technology more in class as well as forming and using more assessments.

Reflection Sessions Summary of Findings

- Overall, teachers enjoyed using the new technologies in their classroom.
- Teachers felt like the technology increased student engagement in the lessons.
- Receiving immediate feedback on student progress enabled teachers to identify struggling students and assess student understanding.
- Technical problems, time needed to set up and integrate technology into their lessons, and desire for more one-on-one training with the technology were identified as the primary frustrations associated with the EETT program.

End-of-Year Teacher Survey

At the conclusion of the EETT program, teachers were asked to provide feedback on their experience with the program through an online survey administered through K12 Insight. All teachers were emailed on June 15, 2011 and asked to respond within two weeks. After one week a reminder email was sent out. One week after that, non-respondents received a final reminder email and an additional week to complete the survey. Twelve of the 15 teachers (80%) involved in the EETT program responded to the survey.

Quantitative Findings

Table 1 lists the frequency of 21 closed-ended questions asked of teachers. All questions were rated on a 5-point Likert scale in which 1 = Strongly Disagree and 5 = Strongly Agree. The % agreement includes individuals who rated a question at a 4 (agree) or 5 (strongly agree).

Top Scored Items	% Agree	Mean
Integrating technology into my instructional practice enhances my ability to teach students.	100%	4.83
Students are actively engaged in lessons when technology is used.	100%	4.67
The use of technology enhances my ability to engage students.	100%	4.67
The use of technology enhances my ability to monitor student progress.	100%	4.67
What is your current level of comfort with technology?	100%	4.58
The information collected with technology enhances my ability to create quality lesson plans.	100%	4.55
I am confident in my ability to prepare a lesson plan that incorporates technology.	92%	4.58
I incorporate technology into all of my lesson plans.	92%	4.42
I use assessment questions during lessons to identify students who may need more instruction.	92%	4.42
I use information obtained from technology to adjust my instruction.	92%	4.42
I am able to use technology on my own without assistance from others.	92%	4.33
Student engagement increased with the use of Voting Response Units.	92%	4.33
I ask assessment questions or give assessment prompts during my daily instruction.	83%	4.50
The learning objectives for the professional development provided by the EETT program were clearly communicated to me at the beginning of the year.	83%	4.33
I plan on using technology to capture student responses when I create assessment questions.	83%	4.08
I use technology to monitor day-to-day student progress.	83%	3.83
Bottom Scored Items	**% Agree**	**Mean**
I use technology during every lesson.	75%	4.17
I create formative assessment questions or prompts when I plan my lessons.	75%	3.92
I use technology to capture student responses to assessment questions.	67%	3.75
My assessment questions are developed and asked as they come to me during class.	67%	3.58
Before participating in this program, what was your level of comfort with technology?	58%	3.50

Overall, teachers indicated their comfort level with the technology had increased by the end of the year. Teachers were most likely to agree or strongly agree that (1) integrating technology into their instructional practice had enhanced their ability to teach students, (2) students are actively engaged in lessons when technology is used, (3) the use of technology enhanced their ability to engage students, and (4) the use of technology enhanced their ability to monitor student progress.

There were slight differences in perceptions of the EETT program between teachers who were selected by school principals to participate and teachers who volunteered for the program. Teachers selected by principals were more confident that they could use the program's technology on their own without assistance from others. They also reported slightly higher levels of student engagement when technology was used. Although not definitive, these findings suggest that principals selected teachers who were more proficient with new forms of technology prior to the program's start. Future program administrators should be aware of the potential impact the mode of selecting participants could potentially have on the implementation and outcomes of the program.

Teachers were relatively less likely to agree that they create formative assessment questions when they plan lessons. Based on the feedback provided in their online reflection journals, teachers expressed that creating formative assessments was often time consuming and many felt like they did not have sufficient time to develop assessments prior to lessons. Additionally, most teachers agreed that professional development learning objectives were clearly communicated at the beginning of the year.

Qualitative Findings

Teachers were also asked to respond to three open-ended questions related to how they had used the technology, how the technology had changed their teaching practices, and their general thoughts about the program. Because teachers came from a range of grade levels, there was wide variation in how the teachers applied the technology to their classroom. For this reason, the teachers' comments are divided into three groups: elementary, middle, and high school.

Use of Technology

Teachers were asked to describe, in an open-ended question, how they use technology. All teachers were positive in their responses and reported that they use the technology frequently. Several teachers noted how the Voting Response Units helped them to understand through formative assessments who understood the material and who needed more help.

Elementary school (K – 5th). Five teachers used the technology with elementary school students. One teacher used the technology to teach students shape patterns. Another teacher trained select students on the ActivExpressions technology and those students trained their classmates how to use the technology. One teacher tracked the academic progress of students to learn which students needed more help on specific lessons before the class as a whole moved on. Teachers recognized the potential value of the technology and hoped they would use it more in the future even if they did not take full advantage of all of the features of the technology. Following is the teachers' feedback:

- ***"I have my students use their ActivExpressions to vote to continue the patterns made from the calendar shapes. I also use them to let the students voice their opinions about the lessons being taught. We use them to practice the kindergarten high frequency words."***

- ***"I use it throughout the day in every subject. Ex: During Math I use my p-board for the review, then for my mid lesson assessment and then at the end of the lesson to see who still needs help by using ActivExpressions. During my guided reading groups my students are on computers working with strand building programs."***

- ***"I use the Promethean Board and ELMO every day for many different activities. I use the student response system and the slate primarily for math instruction, but as I develop new lesson plans over the summer, I foresee a time in the near future when I will use all of it, every day, for everything I teach."***

- ***"I use ActivExpressions to help with formative and Supplemental Assessment in various portions of the day, subjects."***

- ***"Technology in my classroom is through use of an ELMO, ActivBoard, ActivExpressions, hand-held operation practice equipment, and links to specific Internet web sites. Technology is included each day in our classroom, and much of it is driven by the students. Further, I have trained several classrooms on the ActivExpressions and my students trained their reading buddies class on how to use the equipment! It was absolutely impressive and awesome. I added weekly lessons with the classroom next door, during my students' music time, and worked closely with them through a Measured Academic Progress practice website. I cannot express how that improved our seeing exactly who needed what mini-lesson at the exact moment needed. The exciting outcome was when the class would reach a 100% as a class; they were beyond excited for each other and ready for the next lesson. The bell would ring for recess, we wouldn't notice!"***

Middle school (6th – 8th). Four teachers used the technology with middle school students. The teachers remarked on the value of the voting technology. This allowed teachers to recognize which students did not understand the class material and which students teachers needed to spend more time with before advancing to the next topic. One teacher had students use the technology to teach other students. Following are the responses from the teachers:

- ***"I use my Promethean board with every lesson and am learning to incorporate the voters now that I have them."***

- ***"I teach middle school math. In a 50 minute lesson I have kids with abilities that range from the 4th grade level to well above grade level. It is challenging to keep them all actively engaged and interested. The promethean board provides a nice platform to present concepts and to manipulate them for the students to see and interact with. I also love promethean planet as I can see how other teachers have presented concepts to their students which gives me new ideas as to how to share a concept with my own. The ActiVotes have provided me with the biggest shift in my teaching. When I incorporate questions into my daily lessons, I find that I get 100% engagement, can prompt those that are not fully engaged due to the names on the board, can immediately assess with the students how well they understand a concept, allowing us to re-discuss it and immediately address any misconceptions. The data tells me if I need to spend more time on a concept or if I can move on. I love it!"***

- ***"I use the interactive white board for the majority of our classroom instruction...whether it is to show something displayed using the document camera, or a specific flipchart created for lesson content - my students are extremely proficient in using and interacting with the white board. All of my students did individual presentations where they could create a flipchart, a slide show, show a brochure with the document camera, etc. Each student's presentation included their use of technology to share with the class what they had learned about their research topic."***

- ***"I use technology from the beginning of my lesson (warm-up questions) to the end of the class period (closure questions). It is a focal point in my activities (e.g. source of directions), provides important visual aids, and gets students involved in my lessons."***

High school (9th – 12th). Two teachers used the technology with high school students. The teachers both noted the usefulness of the voting technology to get feedback from students throughout their lessons. The teachers' feedback is as follows:

- ***"I use the Promethean Board every day. I save the notes and then post them daily as PDFs on the class website. I use the Elmo almost on a daily basis in different ways, depending on the lesson. I use the response devices in many ways also: to take attendance, for formative and summative assessments, for reviews, and to check for understanding. I use scientific calculators, the internet and many applets that are designed to help students understand concepts and vocabulary."***

- ***"I provide daily guided notes for instruction. During those notes the response system has worked seamlessly to provide instant feedback and assessment."***

Influence on Teaching Practice

Teachers were asked to provide a specific example of how their teaching practice has changed after using the technology. Several teachers commented that the technology helped them identify students who were struggling to understand instruction. As a result, teachers could spend more time with those students to more adequately prepare before they took exams. The technology also encouraged several teachers to spend more time preparing formative assessments in advance.

Elementary school (K – 5th). Elementary school teachers articulated that their teaching practice changed by recognizing which students need more help as they progress through a lesson. This helped assess student understanding of the material before advancing to material that might build on those concepts. Other teachers mentioned that they spent more time before teaching a lesson to prepare the formative questions they wanted to use throughout a lesson:

- ***"Taking this class has allowed me to use technology to enhance student learning. With all of the support it has allowed me discuss my ideas with someone who knows more about the software."***

- ***"Technology has changed my teaching practice by being able to get a true understanding of who or whom doesn't get the lesson being taught. There are no "tag" alongs anymore. I'm also more prepared for my lesson because of having to make flipcharts in advance."***

- ***"In the past, my formative questions came as I was teaching. I had an idea in my head of where I wanted to be and where I wanted the students to be at the end of a lesson and as the opportunity presented itself, I used different activities and various formative assessments. Now, I find that I am planning ahead more in terms of exactly how/when I will use formative assessment in order to incorporate the student response system during the lesson."***

- ***"I am now more aware of those who are learning a concept as we go along instead of waiting for the end of a unit or lesson tests."***

- ***"The most positive, important impact for students in regard to the technology portion of teaching is that I am able to immediately know which of my students understands and which need a little more instruction. The wonderful thing has been that during many lessons, the students have explained it to each other with increasing success! When we reach 100% as a class on a question, the cheers are huge. When we do not, the students want to know how they can help each other. I have seen that as I have trained more classrooms on the use of the ActivExpressions in particular. The students love that piece of technology and feel confident in their use. They remind me to link it; they like to make suggestions as to the method of answering; and they are extremely respectful of the equipment. We have complete engagement as the board shows who have answered, and they always want to be first!"***

Middle school (6th – 8th). Middle school teachers changed their teaching practice by incorporating more formative assessments into their teaching practices. One teacher used the data from the voting technology to organize students into groups based on ability level in order to spend more time with struggling students. Other comments included:

- ***"It is helpful in capturing the students' attention and interest."***

- ***"What I love about the flipcharts for the promethean board is that I am able to sit down and create a lesson that covers everything about a concept. I can put in pre-assessment, mid and post-assessment questions. Before this technology, I did a quick fist to 5 on where kids were at (from their perspective) and I found that it really wasn't very accurate. The information I now get from the ActiVotes is much more accurate and can sometimes tell me what exactly it is that they don't understand. I was able to use the ActiVotes in my last 2 units of the school year. I am really excited to incorporate them into all my units now. It will be interesting to see if they're growth over the course of the year is even greater."***

- ***"The addition of the document camera and individual voting devices has changed my teaching practice because I am now looking for opportunities to capture formative and summative assessment data through impromptu questioning during lessons and self-paced questions. This data will allow me to group students according to ability level and/or identify students who need academic intervention or additional instruction."***

- ***"ActivExpressions have allowed me to get instant feedback from ALL of my students. As a result, I am building formative assessments using the ActivExpressions into my daily lesson plans. I am starting to use this feedback to monitor and adjust future lessons as needed."***

High school (9th – 12th). High school teachers noted that their involvement in the program helped them become more focused on engaging students with the classroom material. One teacher noticed that the technology enabled students who would not usually contribute to actively participate throughout the progression of a lesson. The technology allowed the teachers to adjust their teaching pace to spend additional time with students who misunderstood the concepts from instruction. The teachers' feedback is as follows:

- ***"I was unaware of some of the misconceptions students had during the lessons, and the response devices allowed students who usually would not contribute to the lesson to answer questions. When I would analyze their responses, this gave me a whole new insight to where students are missing the concepts in today's classroom. These are in different areas than I had previously thought. I thoroughly enjoy using the technology and the students ask on a daily basis if they get to use the clickers."***

- ***"Complete 180. Engaging students is the primary purpose of instruction now."***

General Thoughts

Nine out of twelve teachers responded with thoughts, comments, or suggestions they had about the EETT program. Six of the comments expressed appreciation to be in the program and to have the technology equipment installed in their classrooms. The other three teachers focused on frustrations they had while participating in the program. One teacher was disappointed with the Promethean projector noting that it was too dim for students to be able to view what was on the board. The teacher recommended that more money needed to be spent on updating and fixing the technology when problems developed. Another teacher expressed that more training was needed on the voting technology to adequately use the devices.

Appreciation

- *"I am thankful to have been included in this grant opportunity."*
- *"I really enjoyed taking this class and learning how to use all of the technology in my classroom instruction."*
- *"I would like to thank all of the individuals who put this grant together and implemented it. It has helped my classroom tremendously and I am excited for next year."*
- *"Thank you for including me in your grant. I have gotten a lot out of this technology and I know that it has helped me become a more thoughtful teacher."*
- *"I have thoroughly enjoyed learning the new technology and I am extremely grateful for the opportunity to share it with my students. I appreciate the Board and the all the peripherals. In addition, Michael Martindale was an outstanding instructor! He was very approachable and incredibly knowledgeable about the technology. There was not a single question or situation that came up that he was not able to answer right away."*

- *"I really appreciate the opportunity to have so much more training on the equipment. I think Mike Martindale has done an outstanding job of sharing information, helping to troubleshoot, and encouraging us to try different ideas. Thank you."*

Frustration

- *"If technology is going to be supported in the classroom, then the district needs to be more responsible to update, replace, and fix that technology. I have a first generation promethean board that has a VERY dim projector. It is not bulb, but lens. No one in the district is interested in maintenance of this type of equipment and looking for the best priced maintenance service."*
- *"I think the greatest difficulty is having technology that is outdated almost as soon as it is installed and operational. There doesn't seem to be a built in upgrade program with hardware the way there is with software and sometimes the software upgrades are only fully effective on the new hardware. Best Buy just instituted a policy where the consumer can get credit for their outdated equipment when purchasing the upgraded version...it would be ideal if the school district worked that way too."*
- *"Set up and use of the ActiVote are tedious and non-productive. Difficult to use. Could use more training making this process more seamless."*

End-of-Year Survey Summary of Findings:

- Overall, teachers enjoyed using the new technologies in their classrooms.
- Teachers believed that the technology increased student engagement.
- Receiving immediate feedback on student progress enabled teachers to identify struggling students and assess student understanding.
- Technical problems, time needed to set up and integrate technology into their lessons, and desire for more one-on-one training with the technology were identified as the primary frustrations associated with the EETT program.

Discussion

The Year 2 evaluation of the EETT program focused on three primary areas; (1) strengths and barriers of technology implementation; (2) impact of EETT on student engagement; and (3) impact of EETT on classroom instruction. Discussion of EETT programs' progress towards meeting the goals and objectives outlined are discussed in relation to these three areas.

Key Evaluation Questions for EETT Program

- *What are the strengths and barriers to implementation?* What is the overall value teachers place on the integration of technology in the classroom? What additional support, if any, would maximize teacher and student performance outcomes?
- *What is the impact of technology on student engagement?* Does the technology increase students' engagement in the material? Does the technology enable more to participate in classroom discussion?
- *What is the impact of integration of technology on classroom instruction?* Are teachers using the information from the Voting Response Units (VRUs; see Appendix) to drive instruction? Do VRU's enhance teacher's monitoring of students' achievement? Are student deficits identified earlier as a result of increased technology integration?

Strengths and Barriers to Implementation

Strengths: Feedback from teachers and the project leader was essential to assessing the strengths and barriers to implementation of the EETT program. Many teachers were highly motivated to learn the new technologies and developed innovative ways of incorporating the technologies into their classroom instruction. Overall, professional development was successful in training teachers of all proficiency levels how to use the technology in their classrooms, both to increase student engagement and to increase their ability to assess student understanding throughout instruction. After completing the EETT program, several teachers felt able and excited to train other teachers on how to use the new technologies. One teacher reported having taught her students how to use the clicker technology, even assigning them to give a presentation in which they used interactive whiteboards and clicker technologies.

Barriers: Teachers varied widely in their comfort and proficiency using the new technology. Many teachers began with lower levels of technological proficiency and took longer to learn the new technology. Others were unable to complete all of the required professional development sessions. Although teachers were expected to receive 16 hours of training over

the course of the year, only 10 of the 15 teachers received all of the required instruction. Some teachers missed entire days of training, and several others only accrued half of the professional development for which they were scheduled. The differences in proficiency levels seemed to affect some teachers' perceptions of the program, with some reporting feeling so frustrated with the technical problems and the amount of time it took to use the technology that they ultimately abandoned using the technologies in their classrooms altogether.

Strengths of Implementation

- Professional development was very effective in training teachers from all technology proficiency levels on how to use the technology.
- Teachers were able to adapt much of their curriculum for use with the new technologies.
- Teachers developed innovative ways to incorporate technologies into their instruction.
- Teachers expressed excitement that they were now able to train other teachers and even students on using the new technologies.

Barriers to Implementation

- Principals varied in their support of the program.
- Short timeline forced teachers to condense their training.
- A learning curve affected teacher's positive experiences with the technology.
- Teachers varied in the amount of training received from the project leader.
- It was difficult for the project leader to travel among three counties to train the teachers.
- Learning objectives were passed on verbally and not written.
- Teachers' motivation to learn the technologies was negatively impacted by fear of teacher layoffs.

Impact of Technology on Student Engagement

Overall, teachers were positive about their participation in the program and valued the integration of technology in their classrooms. Teachers recognized that integrating technology with the classroom had improved their teaching abilities, both by enhancing student engagement and by helping them monitor student understanding more closely. Most teachers believed that the technology had improved student engagement in their classrooms. Teachers felt that they were able to more readily identify struggling students, and could re-engage them through increased one-on-one instruction.

Impact of Technology on Student Engagement

- Teachers perceived higher student engagement in their classrooms because of technology.
- Struggling students re-engaged because they were identified earlier and received individualized instruction.
- Students enjoyed the interactive nature of the technology and liked participating more in the learning process.
- Only one classroom achieved 90% student engagement at the conclusion of the EETT program.
  - However, 10 of the 15 classrooms were not observed due to time constraints, limiting generalizability from classrooms that were observed.

Unfortunately, only 5 of the 15 cadre teachers were observed in the final classroom observations. Of the five teachers observed, only one of the classrooms achieved student engagement higher than 90%. The other four classrooms achieved student engagement between 80-90%. Future evaluations should ensure that all teachers participate in classrooms observations to ensure that more meaningful assessments about the impact of EETT program can be made.

Impact of Technology on Instruction

Many teachers believed that the information gathered from the Voting Response Units enhanced their ability to monitor student understanding, make needed adjustments to course curriculum, and identify students who were struggling with the material. Some teachers taught the students who did not understand a concept by themselves; at least one other teacher had the students teach other students until the entire class achieved 100% understanding. However, some teachers noted they did not incorporate formative questions consistently from day-to-day because of the extra time it required to prepare those questions in advance. Technical problems when using the technology limited some teachers' motivation to use the technology.

Impact of Technology on Instruction

- Enabled teachers to identify struggling students earlier.
- Teachers adjusted instruction to meet the needs of struggling students.
- Teachers were more thoughtful and prepared with formative questions they asked during instruction.
- Teachers realized it takes a lot of time to convert lessons to a format that integrates with technology.
- Some teachers were not as motivated to learn the technology as other teachers because of frustrations with the learning process.

Report on Program Goals

- Teacher's perceived that the technology significantly increased student engagement in lessons.
- Teachers perceived that technology improved their ability to teach by providing them with moment-to-moment feedback on student understanding of the material.

Limitations

There are some limitations in this evaluation that are of note. An expectation of the original evaluation plan entailed an end-of-year teacher survey. In earlier drafts of the evaluation plan, the end-of-year survey was expected to compare student performance of cadre teachers who had received the technology and professional development compared to student performance of teachers without the technology or professional development. This was expected to reveal between-group differences to establish the effectiveness of the EETT project. This aspect of the teacher survey was abandoned after the PPA&A team received feedback from the project development leader in June 2011 on the status of the project. The project development leader discussed how such a summative evaluation of the project was not feasible because of the

many unanticipated barriers to implementation. It took the teachers much longer than anticipated to learn the technology and to adapt their curriculum to the new medium (e.g., flip charts, incorporate formative assessments). Based on this feedback, PPA&A decided not to frame the end-of-year teacher survey as a summative assessment, rather as a formative assessment focusing on whether the cadre teachers perceived the project accomplished its objectives. It is anticipated that with another year of funding, the program would have evolved to a state that a summative assessment could show meaningful results. For this same reason, an assessment was not made comparing student performance from the 15 teachers on state standardized tests with student performance from previous years as was originally proposed in the EETT grant (p. 8).

Limitations

- Summative assessment of student performance was not feasible given the insufficient time for teachers to learn the technology.
- Cadre teachers were not trained on the interactive whiteboards during the first year of the EETT program.

Teachers needed training before phase 2 of the program. The majority of the 15 teachers who participated in Phase 2 of the EETT program were not proficient in the use of interactive whiteboards upon entering the program. The original intent of the program design for Phase 2 was to primarily focus on training teachers how to use the voting technology in their classrooms. This was not the case. As indicated by the reflection statements of teachers, they had to learn both how to use the interactive whiteboards in addition to the voting technology. This explains why some of the teachers felt frustrated with learning the technology. Had the training been spread across two years, teachers may have been much more prepared to incorporate the voting technology into the classroom.

Future Directions

Several ideas emerged for potential programming moving forward. These ideas were presented by cadre teachers, program leaders, and evaluation team members. These are intended to elicit thought and are not directly tied to evaluation findings. In the long term, the 15 teachers who participated in the EETT program could ideally train other teachers in their school how to use the technology. Teachers could share their curriculums with other teachers, which would reduce the time commitment required to integrate the technology into classrooms. As one teacher demonstrated, notes from classrooms could also be posted online for students to study at home. This would ensure that students could listen more actively to the instruction, rather than trying to take notes while listening.

Future Directions for the EETT Program

- Teachers trained on the technology could teach other teachers at their school how to use the technology
- Teachers could share with other teachers lessons they have integrated with the technology
- Collaborate with the Curriculum Department to develop lesson plans that incorporate the technology

The project leader also noted the EETT program could collaborate with the Curriculum Department of the state to develop material for all teachers that integrates with the technology.

Suggestions for Future Evaluations

Future Evaluations

- Assess student achievement using matched comparisons, standardized test scores, and more classroom observations.

The current evaluation primarily relied on teacher and program leader assessments. Although these perceptions were crucial in formative assessments of the program, future evaluations should include more summative assessments detailing program impact. Additionally, this evaluation focused on how the EETT program affected student engagement and teachers' ability to identify struggling students. Although both engagement and teachers' ability to monitor student understanding are predictive of student achievement, the Year 3 evaluation will rely more heavily on summative assessments of the impact of the EETT program on student achievement. Analyzing EETT student progress on standardized test scores in comparison to a matched sample of students who did not receive new technologies in their classroom and more frequent and detailed classroom observations will help to better understand the impact of classroom technology on student achievement. As teachers become more proficient in using the technology to increase student engagement, make adjustments to lessons based on formative assessments of student understanding, and identify students who are struggling with the material more efficiently, it is expected that the technology has the potential to contribute to students' overall academic and test performance.

Appendix

Following are examples of some of the equipment described in this report.

ActivBoard 500 PRO also referred to as the interactive whiteboard.

ActivExpression also referred to as the Voting Response Units or voting technology.

ActivSlate

White Pine County School District

Nevada EETT 2010-2011
White Pine and Lincoln Counties

Talbot Bielefeldt (talbot@iste.org)
International Society for Technology in Education
June 13, 2011 (revised November 16, 2011)

The Nevada Department of Education awarded the White Pine and Lincoln County School Districts Enhancing Education Through Technology funds for the 2009-2010 and 2010-2011 school years. The funds were targeted to provide technology and professional development to a cadre of teachers who would serve as resources for the rest of their districts. The goals of the grant were to increase integration of technology in classroom instruction, provide training and professional collaboration among teachers, and increase involvement of parents in the schools. The technologies implemented in the districts included mobile laptop labs and classroom sets of handheld computers (iPods).

From the beginning, the project suffered from resource constraints. Funds were awarded on the eve of a nationwide recession that had a devastating effect on the Nevada state budget (McNichols, et al., 2011). The EETT budget was cut 60% prior to implementation. Implementation was delayed until half-way through the first year, and then only supported four mentor teachers instead of the dozen in the original proposal. Both participating districts faced economic issues even prior to the recession. Both are extremely rural areas, consisting largely of mountains and rangeland, with limited employment opportunities. The combined population of the counties is 15,375 in an area of almost 20,000 square miles. The combined school population is 2,382. The largest urban area, Ely (White Pine County), is classified as a small town.

White Pine County, while more populous, started the project with a lower level of technology integration in its schools. Its student/computer ratio is about 2:1, whereas the Lincoln County ratio is about 1.5:1 (Nevada Department of Education, 2010). Many of its computers are outdated, and some of its buildings are quite old and difficult to wire for networking. (The middle school where both EETT teachers worked was built in 1913.) Lincoln County has newer technology and newer buildings. While most of White Pine's old computers are concentrated in computer labs, Lincoln County was emphasizing classroom technology and mobile laptop labs prior to the EETT grant. However, even in Lincoln County, many machines are nearing the end of their useful lives.

Despite differences, the joint application emphasized certain common aspects of the program, including a shared belief that the point of technology was to introduce students to 21st century skills, not simply to facilitate transmission of particular content. Both projects emphasized classroom computer use with mobile technologies, and both based dissemination on a model-classroom approach in which trained teachers would become a resource for others.

Evaluation 2010

The 2010 evaluation report noted several strengths of the districts:

- Proactive leadership to identify the need for digital skills among students and to seek funding for improved infrastructure.
- The presence of a few highly experienced technology-using teachers.
- A pre-existing student-centered pedagogy that aligns well with the National Educational Technology Standards and common technology-based learning activities.

These advantages were offset by several serious barriers to change, including:

- The ongoing fiscal crises.
- Aging technology
- Technical support that, while coping with present use levels, may have difficulty supporting rapid increases in technology integration.

Another factor is the remoteness of the region. "We don't know what we don't know," was a comment heard several times by the evaluator. That is, teachers have limited opportunities to visit a wide variety of classrooms and to encounter a range of learning technologies. Hands-on

training is limited to in-district classes and occasional attendance at professional meetings outside the region.

The first year of the EETT evaluation focused on classroom observations to document the implementation of the new technologies. In interviews with the evaluator, staff emphasized that the technology was implemented without much professional development. In each county, a teacher with relatively more technology integration experience worked with a less experienced teacher to develop learning activities around the new tools. Observations were conducted using the ISTE Classroom Observation Tool (ISTE, 2008a).

In White Pine County, many lessons tended to replicate non-digital activities. Five of the 11 observations noted uses (such as producing student posters as PowerPoint presentations) in which the technology replaced but did not necessarily transform a conventional activity. This is a typical stage for technology learners, and reflects the situation that one of the middle school teachers in White Pine was a technology novice. In most other lessons, technology offered a distinct advantage (e.g., the ability to turn a student writing assignment into a publication, or to complete a research project in less time that would be otherwise possible.) In Lincoln County, the relatively greater experience with technology resulted in most technology-based lessons offering advantages over alternatives.

Evaluation 2010-11

Prior to the start of the 2010-11 school year, the EETT funding was once again cut, this time approximately in half. Given the difficulty of implementing the extensive professional development envisioned in the original grant, ISTE proposed to change the evaluation plan from a focus on results of EETT to a more comprehensive needs assessment that would inform ongoing district efforts to pursue future funding. This study would update the needs assessment presented in 2009 in the EETT application and would take into account changes resulting from EETT and other grants. The new scope of work involved visiting schools besides those directly involved in EETT and surveying all teachers in the districts about their needs and concerns.

Site Visits

Site visits were conducted March 28-31, 2011 in Ely in White Pine County and in Panaca, Caliente, and Alamo in Lincoln County. In Ely, the evaluator met with the Assistant Superintendent, principals of six of the district's seven schools, and the district technical support

person. Although classroom observations were not the focus of the 2011 visits, the evaluator did visit classrooms at White Pine High School, an alternative high school, and an elementary school, as well as at the middle school that participated in EETT.

Principals interviewed in White Pine agreed that there was a relationship between age and technology integration, with younger teachers more open to use technology in teaching. Although access has improved, there are issues in taking advantage of technology. Network bandwidth limitations slows some web applications to the point that they are not feasible to use in lessons. (A student presentation during the site visit had to be postponed because of difficulty retrieving the necessary files from the Local Area Network.) Policies have not caught up to technology. Some web resources (e.g., YouTube videos) are blocked by security policies. PowerSchool, a student data management system from Pearson that allows parent access from home, is seen as a potentially valuable link to the community. This was one of the goals of the EETT grant. However, teacher and principal estimates of home computer and network availability ranged from 50%-75%, which would limit the role that this application can play. A respected reading program, which one school believes would help boost its test scores, is out of the district's price range. Financial concerns were prominent in the district: During the site visit, the district had to announce a school closure in the northern county.

While the more-experienced of two grant-supported middle school teachers in the district had moved to another school, the less-experienced teacher had embraced the use of laptops and iPads and aggressively incorporated them into practice. He now mentors other teachers in the school, including the individual who filled the vacant EETT spot. Technology practices included web research; student web sites, presentations, and publications; and the use of computer-proficient students to provide in-class technical support. The EETT teacher said that although there were instances of stolen iPads, effective classroom management procedures had generally demonstrated students' ability to use the equipment responsibly. (The middle school in Ely is nationally recognized for its work in school behavior.) In a change from the previous year, the district allowed students to take devices home to complete assignments.

Lincoln site visits included high schools at Panaca and Alamo and the elementary school at Caliente. The evaluator interviewed principals at each site and talked to technology support staff in Panaca and Alamo. The evaluator visited EETT and other classrooms at Lincoln County High

School (Panaca) and Caliente Elementary. The more experienced of the two EETT teachers faced a transfer from upper elementary to primary grades, but in this case, the teacher remained in the same building and could continue to provide support for other staff. In addition, the district retained a second instructional technology support person at the middle school level. A third support person is stationed at a Middle/High school in Alamo, remote from the district office. According to the EETT teacher, the additional support, along with recent increases in network bandwidth, had a positive effect on technology use. When a dozen laptops went down, the middle school support person was able to come to the elementary to re-image the machines. "A little help went a long ways," the elementary teacher said.

A continuing issue, as in White Pine, is "last mile" networking. Neither district has ubiquitous wireless coverage in its buildings. Rather, they depend on regional nodes. The $12,000 it would cost to set up a school-wide zone at the elementary school in Caliente would be a significant expense for the small district. Another issue is choosing the right format for professional development. Finding that group classes were not well-attended, the middle school technical support person says she does more one-on-one training.

Three technology-using elementary classes were observed in Lincoln County. One was taught by the elementary EETT teacher and the others by teachers she had worked with. The lessons involved several technologies, including web browsers, presentation software, global positioning systems, and web-based visualization tools. Students, as individuals or small groups, were the main users of the technology; teachers served in a facilitation role.

Teacher Survey

The 2011 survey asked teachers in both districts to comment on district needs for technology and professional development. It used some questions that had been presented the previous year as well as some additional items. Principals were asked during site visits to promote the survey to their staff members. The survey was made available online and was taken by 47 teachers and three administrators from White Pine and by 10 teachers and one administrator from Lincoln. Four direct participants in EETT took the survey prior to the site visits in March, and the rest of the respondents completed the survey between March 9 and May 16, 2011. The complete text of

the survey appears in the appendix. The distribution of responses across grades and districts appears in Table 1.

Table 1. Survey responses by district and grade level.

Grades Taught	White Pine	Lincoln	Grade Totals
K-2	8	0	8
K-5	4	0	4
K-8	1	1	2
K-12	3	0	3
3-5	10	1	11
3-8	2	0	2
6-8	7	2	9
6-12	1	5	6
9-12	7	1	8
Other instructional	4	0	4
Administrator	3	1	4
District Totals	50	11	61
Response Rate	48% of 105 teachers	14% of 77 teachers	

Chi-square statistics were used to examine the frequencies of responses across grades and districts for significant differences in proportions. These tests have low power to detect significant differences because of the low response rate from Lincoln County; it is possible that the results here would not generalize to all teachers in the districts.

Grade level was not a significant factor in the survey responses. For many variables, responses were similar across districts as well. Although 36% of Lincoln County respondents had been involved in grant-funded training from EETT or other programs, vs. 18% of White Pine teachers, the difference was not significant ($\chi^2[1]=1.81$, $p=.18$). Because the implementation theory behind the grant depended on model teachers, the survey asked how often teachers helped one another with technology. Again, differences in frequencies between districts were not significant (Table 2).

Table 2. Teacher frequency of assisting peers with technology, by district.

Help Others	WP (n=50)	Lincoln (n=11)
Never	24%	27%
Once a month or less	44%	27%
Once a week or less	14%	36%
More than once a week	12%	9%
Daily	6%	0%

In terms of types of professional development that were favored, the districts had quite different profiles. Small study groups and district workshops were the formats most likely to be rated useful or optimal by White Pine teachers, whereas professional conferences and one-to-one mentoring were most favored in Lincoln County (Table 3). The differences were particularly striking in the case of attitudes toward district workshops ($\chi^2[3]=9.14$, p=.003)

Table 3. Percentages of teachers rating professional development types as "useful" or "the best way for me to learn."

	White Pine		Lincoln	
Useful or Best Form of PD	**Response %**	**N**	**Response %**	**N**
Taking a college class	63%	49	36%	11
District-provided workshop	78%	49	36%	11
Professional conference	73%	49	91%	11
1-on-1 mentoring	71%	49	83%	11
Small study group	82%	50	73%	11
Independent study	45%	49	82%	11
Distance learning	35%	48	54%	11

In terms of what professional development teachers actually use or expect to use, teachers' comments indicated that the main source was district-provided events (one from Lincoln, 19 from White Pine). Other common sources were conferences (one from Lincoln, six from White Pine), and personal exploration (two from Lincoln, five from White Pine). Other sources included college classes (one from Lincoln, two from White Pine) and online learning (one from Lincoln). The comments did not elaborate on reasons for the different preferences. It may be a matter of availability (e.g., more workshops offered in White Pine) or proximity (e.g., Lincoln is closer to meetings held in Las Vegas).

The survey presented teachers with the prompt, "At the end of last school year, most teachers responding to a survey said that improving the technology infrastructure was the most important thing that White Pine and Lincoln Counties could do to help provide students with 21st century skills. If the districts could only fund one improvement, what resource would you develop first?" (Table 4). In this case, there was a significant difference by district ($\chi^2[7]=20.99$, p=.004). In particular, professional development was a more prominent request in Lincoln County than in White Pine, where new and more computers were the major concern.

Table 4. Teacher top priorities for new technology initiatives, by district.

Most Needed Improvement	White Pine (n=48)	Lincoln (n=11)
Specific content software (e.g., Read 180, virtual labs)	2%	9%
More computers.	15%	0%
Improved networking.	0%	9%
Replacing old computers.	48%	9%
Interactive white boards.	21%	27%
Professional development on resources we have now.	13%	27%
Class web sites.	2%	0%
Publishing software for students.	0%	18%

In open-ended comments, teachers in both districts (two in Lincoln, three in White Pine) said that they would like to know more about troubleshooting their own technology. “It’s hard to use [technology] in the classroom when the software or hardware is always on the fritz,” one wrote. The most popular specific technologies for training were interactive white boards (10 White Pine teachers) and iPods (one teacher in Lincoln, four in White Pine). Six teachers (one in Lincoln, five in White Pine) expressed general concerns, e.g., “How to more effectively integrate [technology] at all levels,” and “What software is available.”

The most consistent differences were in attitudes to the Essential Conditions of the National Educational Technology Standards (ISTE, 2008b). The Essential Conditions are a catalog of systemic factors that affect the use of technology for teaching and learning. In the experience of the evaluator on numerous educational technology projects, difficulties in implementing programs are always attributable to constraints imposed by one or more of these conditions. Table 5 displays each of the Essential Conditions, with the response frequencies from each district. In every case, the median rating from Lincoln teachers was higher than the rating from White Pine teachers. The overall median rating for Lincoln teachers was “3” (currently working on Essential Conditions), and the overall median for White Pine was “2” (just beginning to address a condition). The frequency proportions were significantly different for every Essential Condition except technical support.

Table 5. Teacher estimates of attainment of NETS Essential Conditions, by district.

	White Pine					Lincoln				
Essential Condition	Don't meet	Just started	Working on it	Meet	N	Don't meet	Just started	Working on it	Meet	N
Shared vision for educational technology among all stakeholders.**	35%	51%	14%	0%	49	9%	36%	36%	18%	11
Stakeholders empowered to be leaders in effecting change.***	51%	33%	16%	0%	49	9%	27%	36%	27%	11
A systemic plan for the infusion of technology.***	41%	49%	10%	0%	49	9%	0%	64%	27%	11
Ongoing funding to support technology and staff development.**	53%	27%	20%	0%	49	9%	18%	64%	9%	11
Reliable and equitable access to current and emerging technologies.***	53%	39%	8%	0%	49	9%	18%	55%	18%	11
Educators skilled in the selection and effective use of appropriate technology resources.***	35%	51%	14%	0%	49	9%	18%	45%	27%	11
Technology-related professional development with time to practice and share ideas.**	35%	53%	12%	0%	49	9%	36%	45%	9%	11
Consistent and reliable technical support.	8%	46%	35%	10%	48	10%	30%	40%	20%	10
Content standards and curriculum resources that support digital-age learning.**	41%	51%	8%	0%	49	9%	27%	55%	9%	11
Teaching and assessment centered around the needs and abilities of students.*	12%	41%	43%	4%	49	9%	9%	55%	27%	11
Continuous assessment of teaching, learning, leadership, and the use of digital resources.**	39%	43%	16%	2%	49	9%	36%	27%	27%	11
Partnerships and collaboration within the community to support technology use.***	55%	39%	6%	0%	49	9%	36%	36%	18%	11
Policies and incentive structures to support technology use.***	48%	46%	6%	0%	48	9%	9%	82%	0%	11

*χ^2 (3df) significant, p<.05
**χ^2 (3df) significant, p<.01
***χ^2 (3df) significant, p<.001

Summary

Although the educational system in Nevada and other states is under great stress, the EETT program in White Pine and Lincoln Counties worked as planned. Within the limitations imposed by technology and funding, teachers who participated in grant-funded professional development are sharing their skills with peers and doing so in a manner that emphasizes student use of technology. The effect of the funding cuts was that the program could only reach a fraction of the teachers intended in the original proposal.

The 2011 evaluation added to the previous year's study by bringing to light certain differences between the two school districts. The districts' shared demographics–low populations, proximity to each other, and remoteness from other population centers–make them

obvious partners for grants such as EETT. Because many grant programs attend to the number of students served, it makes sense for neighboring districts with low populations to band together to serve larger numbers of students under one program. However, the specific needs cited by Lincoln and White Pine teachers are different enough that it may be difficult to accommodate both districts with the same professional development approach. If the survey results are representative (and that could be questioned because of the low Lincoln response rate), the preferred professional development formats in the two counties are quite different. A popular program in one district might not be accepted by teachers in the other. Finally, while the districts are adjacent, the population centers are not. The closest schools in the two districts are more than 100 miles apart via secondary highways. Teachers cannot easily get together for joint projects or training. While Lincoln County is close enough to Las Vegas (100 miles from Alamo) that its teachers can look to the large Clark County School District for out-of-district professional development, Ely is approximately 250 miles from the metropolis. Nevada's other major city, Reno, is 320 miles to the west. Salt Lake City, Utah, 250 miles to the north, is the next closest urban area.

Another issue is the relative importance of infrastructure in the two districts. White Pine teachers see the main concern to be additional hardware and software, while Lincoln teachers are more concerned with professional development. That means the districts may have priorities for different types of grants. Some professional development grants prohibit spending awarded funds on infrastructure.

Recommendations

With economic constraints dominating education, recommendations here emphasize actions intended to make use of existing resources, avoid wasting resources, or acquire new resources.

1. Create a model for addressing needs efficiently.

Infrastructure and professional development were the most requested elements of new programs. However, there is evidence that teachers are not aware of all the options for educational technology. Some teachers and administrators expressed a concern that they did not know what tools were available to support their work. While EETT classrooms emphasized hands-on use of mobile technologies by students, the most common requests for new equipment

and training focused on presentation technologies. This suggests that there is not a single vision of what technology use should look like. This is realistic in that technology can play many roles in education. In the short term, however, districts need to make specific choices about what to support. The model, then, should start with making educators aware of possibilities.

Although one-shot professional development is notorious for having little effect on practice, teachers who attended state and national conferences under EETT described the experience as eye-opening in terms of understanding the role of technology in learning. Another source of information might be direct outreach to other districts. For instance, another EETT grantee in the same cohort as White Pine and Lincoln, a Washoe/Douglas County consortium, devoted its funds to extensive development of whiteboard use in the Reno and Lake Tahoe areas. Washoe County and its partners have years of information on the benefits and costs of this technology in both urban and rural settings and would be a valuable resource. While not a solution to long-term professional development needs, helping teachers connect with peers in other districts or at regional conferences may be an efficient way of bringing a large amount of information into the district quickly. Including school board or other community members in these missions is an approach that some districts have pursued in order to build community understanding of educational technology needs and possibilities.

2. Consider future strategic partnerships.

Because of teachers' differing perceptions of professional development and the essential conditions of technology integration, White Pine and Lincoln should consider if they are the best partners for future grants. Because those perceptions, expressed on the teacher survey, were summarized from a small sample in the case of Lincoln County, they should be confirmed before basing decisions on the findings. However, if they are valid, it may be that other partners would be more closely aligned with each districts' needs. Geographic isolation is an issue for many districts in the Great Basin west. ISTE has worked with successful projects in Oregon and Nevada that have initiated collaborations across distances as great or greater than those separating the White Pine and Lincoln population centers.

3. Empower educators.

Given the likely need for teachers to learn and innovate without a large amount of financial support, empowerment is an essential condition that deserves special consideration. Empowerment with educational technology means that teachers have the ability to learn how to

use hardware and software in their work and to implement educational decisions. This is not just an access issue, but also related to policy. So, for instance, an "empowering" moment it EETT came when White Pine students were allowed to take laptops home to complete an assignment. That took a leap of faith on the part of the district that wants to protect its equipment, and it led to a change in practice.

In future planning, the districts should consider what policy decisions are implied by technology integration. Teachers may be more encouraged to learn and apply new skills if they know their actions will be supported. This concern was particularly strong in White Pine County, but the evaluators' experience in other districts has shown this to be a shifting target. For instance, technology support policies and staffing, which may be adequate at one level of use, can quickly become obsolete as more teachers begin to use technology in their work and place greater demands on the equipment and networks. Teachers empowered to create new kinds of lessons are likely feel disenfranchised when they are unable to effectively use or maintain the required technology.

4. Build on what worked.

The EETT program of model classrooms worked. The original proposal called for creating three times the number of teacher leaders than were eventually supported. It is intriguing to imagine what the districts could have done if fully funded. In order to capitalize on this accomplishment, the model for ongoing development would need to include a pathway for sharing the knowledge in the model classrooms. It has been ISTE's experience over many program evaluations that model classrooms in and of themselves do not change a school. They tend to remain islands of innovation unless the district explicitly supports dissemination. That can take many forms, including training cadres of more experienced teachers, offering classes in which students receive credit for serving as technology mentors, and redefining job assignments to include instructional technology support.

Even done with existing technology and without external consulting, all of these suggestions have costs in terms of time, consensus building, policy changes, and ultimately funding. However, having implemented EETT under difficult circumstances, leveraging that success in future funding initiatives would be a promising place to start.

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Appendix: White Pine / Lincoln EETT Survey 2010-11

As part of evaluating the second year of Nevada's Enhancing Education Through Technology (EETT) grant in White Pine and Lincoln Counties, the International Society for Technology in Education (ISTE) would like to find out more about how you use and think about technology in teaching and learning. Some of the questions are similar to ones we asked last year; some are new.

Your responses are anonymous and confidential; they will only be reported in the aggregate. Your answers will help the districts improve services under the EETT grant and plan for future initiatives. If you have any questions, contact Talbot Bielefeldt, Senior Research Associate, ISTE at talbot@iste.org. Thanks for your help.

1. School District
□ White Pine □ Lincoln

2. What grade level(s) do you teach?
□ K-2 □ 3-5 □ 6-8 □ 9-12
Other (please specify)

3. Are you directly involved with professional development in any current technology initiatives?
□ EETT □ Pathway
Other (please specify)

4. How often do you help other staff in the district with technology, either with technical issues or with technology-related instruction?
□ Never □ Once a month or less □ Once a week or less □ More than once a week □ Daily

5. At the end of last school year, most teachers responding to a survey said that improving the technology infrastructure was the most important thing that White Pine and Lincoln Counties could do to help provide students with 21st century skills. If the districts could only fund one improvement, what resource would you develop first?
□ More computers.
□ Class web sites.
□ Replacing old computers.
□ Improved networking.
□ Specific content software (e.g., Read 180, virtual labs)
□ Interactive white boards.
□ Publishing software for students.
□ Professional development on resources we have now.
□ Other (please specify)

6. What would you most like to learn about using technology in teaching and learning?

7. How do you prefer to learn in your job? Please rate the following approaches:

	Not useful for me	Can be useful, but I learn more with other approaches	Useful, one of several good ways for me to learn	The best way for me to learn
Taking a college class				
District-provided workshop				
Professional conference				
1-on-1 mentoring				
Small study group				
Independent study				
Distance learning				

8. What types of professional development do you expect to participate in this year?

9. How familiar are you with Nevada's 2009 Educational Technology Plan?

□ Never heard of it.
□ Heard of it, but never read it.
□ Aware of its contents, but never read it.
□ Have read the plan.

10. The National Educational Technology Standards talk about essential conditions for using technology in schools. Where do you think your school is in terms of meeting these conditions?

	We don't meet this condition and have not worked on it.	We're just starting to address this issue.	We have been working on this issue for a while.	We mostly meet this condition.
Shared vision for educational technology among all stakeholders.				
Stakeholders empowered to be leaders in effecting change.				
A systemic plan for the infusion of technology.				
Ongoing funding to support technology and staff development.				
Reliable and equitable access to current and emerging technologies.				
Educators skilled in the selection and effective use of appropriate technology resources.				
Technology-related professional development with time to practice and share ideas.				
Consistent and reliable technical support.				
Content standards and curriculum resources that support digital-age learning.				
Teaching and assessment centered around the needs and abilities of students.				
Continuous assessment of teaching, learning, leadership, and the use of digital resources.				
Partnerships and collaboration within the community to support technology use.				
Policies and incentive structures to support technology use.				

That's it! When you click the "Done" button, your browser will go to the ISTE Research & Evaluation home page. Thanks for helping with this survey.

EETT 2010 Formula Funding

Clark County School District

Program Description

The Mathematics and Instructional Technology Department in the Curriculum and Professional Development Division received funding available through the Enhancing Education Through Technology Program, through the Nevada Department of Education, as provided by Title II, Part D of "No Child Left Behind," for the purpose of providing professional development to administrators and teachers to ensure the integration of technology into instructional practices and all curricula. These funds were utilized to evaluate technology integration in classroom instruction to ensure that effective technology strategies and methodologies are implemented. The primary goals of this project were to increase student achievement focusing on technology integration by providing high quality professional development to teachers and administrators and to develop best practices and models of technology implementation.

The project provided funding for salaries and benefits, technical and consultant services, out-of-district travel, instructional supplies, books and periodicals, technology related supplies, items of value, and indirect costs. Success of the grant is being reported in the following areas: ECS Support, Technology Conference, FASST Math implementation and professional development, Whiteboard Training, and Equipment to Support Technology Projects.

ECS Support

ECSs, district wide, were provided professional development that focused on technology integration, working with adult learners, and current technologies for 21st century learners. Funds were used for teachers participating in professional development led by ECSs. Mentors were provided to new ECSs, and ECS Advisory Committee members continued to serve as liaisons between their service areas, schools, and CPDD staff. CPDD staff attended and presented at

national conferences, bringing back ideas for best practices and forming collaborations that assist CCSD in professional development efforts.

Technology Conference

A yearly technology conference was provided for teachers, ECSs, and administrators in October 2009. Participants from across the state joined, funded by their respective districts. Keynote speakers and presenters were paid stipends, as well as staff (including custodians) for the weekend conference. Participants not earning credit received a stipend for full participation (112 CCSD attendees). Funds also provided for custodial, presenter, and keynote speaker compensation as appropriate. Following are frequency tables with survey question results.

Frequency Tables

October 23, 2009

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	1	1.2	1.4	1.4
	Yes	68	82.9	98.6	100.0
	Total	69	84.1	100.0	
Missing	System	13	15.9		
Total		82	100.0		

October 24, 2009

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	69	84.1	100.0	100.0
Missing	System	13	15.9		
Total		82	100.0		

The presentations were well organized.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	23	28.0	41.8	41.8
	Agree	25	30.5	45.5	87.3
	Disagree	6	7.3	10.9	98.2
	Strongly Disagree	1	1.2	1.8	100.0
	Total	55	67.1	100.0	
Missing	System	27	32.9		
Total		82	100.0		

The information was presented clearly.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	19	23.2	34.5	34.5
	Agree	29	35.4	52.7	87.3
	Disagree	6	7.3	10.9	98.2
	Strongly Disagree	1	1.2	1.8	100.0
	Total	55	67.1	100.0	
Missing	System	27	32.9		
Total		82	100.0		

The information provided has increased my knowledge of technology and of the topics I attended.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	20	24.4	36.4	36.4
	Agree	30	36.6	54.5	90.9
	Disagree	2	2.4	3.6	94.5
	Strongly Disagree	3	3.7	5.5	100.0
	Total	55	67.1	100.0	
Missing	System	27	32.9		
Total		82	100.0		

I will be able to implement/apply the ideas presented.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	20	24.4	36.4	36.4
	Agree	29	35.4	52.7	89.1
	Disagree	2	2.4	3.6	92.7
	Strongly Disagree	3	3.7	5.5	98.2
	Not Applicable	1	1.2	1.8	100.0
	Total	55	67.1	100.0	
Missing	System	27	32.9		
Total		82	100.0		

The information from the presentations reinforced or enhanced my professional competence.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	18	22.0	32.7	32.7
	Agree	32	39.0	58.2	90.9
	Disagree	3	3.7	5.5	96.4
	Strongly Disagree	2	2.4	3.6	100.0
	Total	55	67.1	100.0	
Missing	System	27	32.9		
Total		82	100.0		

The information provided has increased my knowledge of instruction or improved my ability to provide instruction.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	19	23.2	34.5	34.5
	Agree	28	34.1	50.9	85.5
	Disagree	4	4.9	7.3	92.7
	Strongly Disagree	3	3.7	5.5	98.2
	Not Applicable	1	1.2	1.8	100.0
	Total	55	67.1	100.0	
Missing	System	27	32.9		
Total		82	100.0		

Technology impacts student achievement positively.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	38	46.3	69.1	69.1
	Agree	17	20.7	30.9	100.0
	Total	55	67.1	100.0	
Missing	System	27	32.9		
Total		82	100.0		

I would recommend these topics be offered again.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	16	19.5	29.1	29.1
	Agree	31	37.8	56.4	85.5
	Disagree	5	6.1	9.1	94.5
	Strongly Disagree	2	2.4	3.6	98.2
	Not Applicable	1	1.2	1.8	100.0
	Total	55	67.1	100.0	
Missing	System	27	32.9		
Total		82	100.0		

I would like to be kept informed about next year's conference.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	50	61.0	90.9	90.9
	No	5	6.1	9.1	100.0
	Total	55	67.1	100.0	
Missing	System	27	32.9		
Total		82	100.0		

Certification:

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	K-12	8	9.8	14.8	14.8
	Elementary	23	28.0	42.6	57.4
	Secondary	15	18.3	27.8	85.2
	Counselor	1	1.2	1.9	87.0
	Administrative	4	4.9	7.4	94.4
	Other	3	3.7	5.6	100.0
	Total	54	65.9	100.0	
Missing	System	28	34.1		
Total		82	100.0		

Position held:

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Teacher	33	40.2	61.1	61.1
	Administrator	4	4.9	7.4	68.5
	Counselor	1	1.2	1.9	70.4
	Other	15	18.3	27.8	98.1
	Choose not to answer	1	1.2	1.9	100.0
	Total	54	65.9	100.0	
Missing	System	28	34.1		
Total		82	100.0		

Current level:

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Elementary	25	30.5	46.3	46.3
	Middle/JHS	14	17.1	25.9	72.2
	Secondary	13	15.9	24.1	96.3
	K-12	1	1.2	1.9	98.1
	Other	1	1.2	1.9	100.0
	Total	54	65.9	100.0	
Missing	System	28	34.1		
Total		82	100.0		

Gender:

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	14	17.1	25.9	25.9
	Female	40	48.8	74.1	100.0
	Total	54	65.9	100.0	
Missing	System	28	34.1		
Total		82	100.0		

Ethnic group:

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	White	34	41.5	63.0	63.0
	Black	4	4.9	7.4	70.4
	Hispanic	5	6.1	9.3	79.6
	Asian/Pacific Islander	3	3.7	5.6	85.2
	Other	1	1.2	1.9	87.0
	Choose not to answer	7	8.5	13.0	100.0
	Total	54	65.9	100.0	
Missing	System	28	34.1		
Total		82	100.0		

The keynote speaker was:

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Outstanding	30	36.6	54.5	54.5
	Good	16	19.5	29.1	83.6
	Average	9	11.0	16.4	100.0
	Total	55	67.1	100.0	
Missing	System	27	32.9		
Total		82	100.0		

It would be beneficial to preregister for sessions at the conference.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	45	54.9	81.8	81.8
	Disagree	10	12.2	18.2	100.0
	Total	55	67.1	100.0	
Missing	System	27	32.9		
Total		82	100.0		

How did you hear about the conference?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Interact	10	12.2	18.5	18.5
	ECS	19	23.2	35.2	53.7
	Administration	5	6.1	9.3	63.0
	Teacher	3	3.7	5.6	68.5
	Past attendee	12	14.6	22.2	90.7
	Flyer	3	3.7	5.6	96.3
	Other	2	2.4	3.7	100.0
	Total	54	65.9	100.0	
Missing	System	28	34.1		
Total		82	100.0		

I attended the following session on Oct 23 at 6:10pm:

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Friday 1 6:10 p.m. - 7:00 p.m. Printed Booklets, Podcasts, and Digital Stories Room 165A	2	2.4	3.4	3.4
	Friday 2 6:10 p.m. - 7:00 p.m. Using Pedometers Across the Curriculum Rodeo Room	3	3.7	5.1	8.5
	Friday 3 6:10 p.m. - 7:00 p.m. Photo Editing : Easy to Use With Free Software Room 226	7	8.5	11.9	20.3
	Friday 4 6:10 p.m. - 7:00 p.m. Lights! Computer! Action! Room 227	5	6.1	8.5	28.8
	Friday 5 6:10 p.m. - 7:00 p.m. Finding & Securing Grant Money for School Projects Room 207	5	6.1	8.5	37.3
	Friday 7 6:10 p.m. - 7:00 p.m. Data Connection: Never Have to Grade Another Test Room 233	3	3.7	5.1	42.4
	Friday 8 6:10 p.m. - 7:00 p.m. vrLibrary: THE Way to Connect with Your Curriculum Room 136	1	1.2	1.7	44.1
	Friday 9 6:10 p.m. - 7:00 p.m. "Reel" Results: Digital Video in the Classroom Room 117	6	7.3	10.2	54.2
	Friday 10 6:10 p.m. - 7:00 p.m. Listen Up: How Music Can Transform Your Lessons Library	6	7.3	10.2	64.4
	Friday 11 6:10 p.m. - 7:00 p.m. What ECSs Need to Know About ParentLink Room 114	2	2.4	3.4	67.8
	Friday 12 6:10 p.m. - 7:00 p.m. What Ails Your Computer? Viruses, Spyware & More Room 135	5	6.1	8.5	76.3

	Friday 13 6:10 p.m. - 7:00 p.m. Online Pedagogies, Moodle, and 21st Century Learning Room 201	3	3.7	5.1	81.4
	Friday 14 6:10 p.m. - 7:00 p.m. Using Technology to Integrate ELA and Social Studies Room 209	1	1.2	1.7	83.1
	Friday 15 6:10 p.m. - 7:00 p.m. CUE-SN's Tool Shed CUE Room	1	1.2	1.7	84.7
	Friday 16 6:10 p.m. - 7:00 p.m. Vendor Booths Cafeteria	8	9.8	13.6	98.3
	Did not attend a session during this time	1	1.2	1.7	100.0
	Total	59	72.0	100.0	
Missing	System	23	28.0		
Total		82	100.0		

I attended the following session on Oct. 23 at 7:10pm:

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Friday 17 7:10 p.m. - 8:00 p.m. Accomplish Amazing Animations in the Classroom Room 165A	5	6.1	8.8	8.8
	Friday 18 7:10 p.m. - 8:00 p.m. Using Wikis to Build WebQuests Rodeo Room	6	7.3	10.5	19.3
	Friday 19 7:10 p.m. - 8:00 p.m. Photo Editing : Easy to Use With Free Software Room 226	1	1.2	1.8	21.1
	Friday 20 7:10 p.m. - 8:00 p.m. 50 Ways to Use Discovery Education Streaming Room 227	7	8.5	12.3	33.3
	Friday 21 7:10 p.m. - 8:00 p.m. Differentiation & Project-Based Learning in CCSD Room 225	7	8.5	12.3	45.6
	Friday 22 7:10 p.m. - 8:00 p.m. Three-Level System to Identify Teacher Technology Use Room 233	3	3.7	5.3	50.9
	Friday 23 7:10 p.m. - 8:00 p.m. Engaging Students: Let the Games Begin Room 136	5	6.1	8.8	59.6
	Friday 24 7:10 p.m. - 8:00 p.m. Mac and Windows - Two Operating Systems on One Computer Room 117	1	1.2	1.8	61.4
	Friday 25 7:10 p.m. - 8:00 p.m. Listen Up: How Music Can Transform Your Lessons Library	1	1.2	1.8	63.2
	Friday 26 7:10 p.m. - 8:00 p.m. What ECSs Need to Know About ParentLink Room 114	2	2.4	3.5	66.7
	Friday 27 7:10 p.m. - 8:00 p.m. Explore Learn360: The NEW Choice for Steaming MediaRoom 135	4	4.9	7.0	73.7

	Friday 28 - 8:00 p.m. your Professional Learning Network (PLN)	7:10 p.m. Building Room 201	4	4.9	7.0	80.7
	Friday 29 - 8:00 p.m. Technology to Integrate ELA and Social Studies	7:10 p.m. Using Room 209	4	4.9	7.0	87.7
	Friday 31 - 8:00 p.m. Booths * Cafeteria	7:10 p.m. Vendor	3	3.7	5.3	93.0
	Did not attend a session during this time		4	4.9	7.0	100.0
	Total		57	69.5	100.0	
Missing	System		25	30.5		
Total			82	100.0		

I attended the following session on Oct 23 at 8:10pm:

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Friday 32 8:10 p.m. - 9:00 p.m. Multimedia, and Video, and Paint, Oh My! Room 165A	11	13.4	19.6	19.6
	Friday 33 8:10 p.m. - 9:00 p.m. Using Wikis to Build WebQuests Rodeo Room	2	2.4	3.6	23.2
	Friday 35 8:10 p.m. - 9:00 p.m. I Can Do That With PowerPoint? Room 227	7	8.5	12.5	35.7
	Friday 36 8:10 p.m. - 9:00 p.m. Cutting-Edge Totally Online Keyboarding Room 225	1	1.2	1.8	37.5
	Friday 37 8:10 p.m. - 9:00 p.m. Three-Level System to Identify Teacher Technology Use Room 233	1	1.2	1.8	39.3
	Friday 38 8:10 p.m. - 9:00 p.m. More Writing, Less PaperRoom 136	4	4.9	7.1	46.4
	Friday 39 8:10 p.m. - 9:00 p.m. Mac and Windows - Two Operating Systems on One Computer Room 117	1	1.2	1.8	48.2
	Friday 40 8:10 p.m. - 9:00 p.m. Using Your Document Camera to the Fullest Library	6	7.3	10.7	58.9
	Friday 41 8:10 p.m. - 9:00 p.m. Student Response Systems: Formative/Summative Room 114	2	2.4	3.6	62.5
	Friday 42 8:10 p.m. - 9:00 p.m. Explore Learn360: The NEW Choice for Steaming MediaRoom 135	1	1.2	1.8	64.3
	Friday 43 8:10 p.m. - 9:00 p.m. Classroom Blogging: Taking It To The Next StepRoom 201	5	6.1	8.9	73.2
	Friday 45 8:10 p.m. - 9:00 p.m. CUE-SN's Tool Shed CUE Room	6	7.3	10.7	83.9

	Friday 46 - 9:00 p.m. Booths *	8:10 p.m. Vendor Cafeteria	6	7.3	10.7	94.6
	Did not attend a session during this time		3	3.7	5.4	100.0
	Total		56	68.3	100.0	
Missing	System		26	31.7		
Total			82	100.0		

I attended the following session on Oct 24 at 10:10am:

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Saturday 47 10:10 a.m. - 11:00 a.m SFMOMA's ArtThink: Curriculum for Visual Arts, Language Arts, & Social Studies Room 1	4	4.9	7.3	7.3
	Saturday 48 10:10 a.m. - 11:00 a.m Basic Navigation of IDMS for Elementary Teachers Rodeo Room	1	1.2	1.8	9.1
	Saturday 49 10:10 a.m. - 11:00 a.m Create Your Own Webpage: Simple and Free Room 227	10	12.2	18.2	27.3
	Saturday 50 10:10 a.m. - 11:00 a.m Managing & Assessing Student Blogs Room 226	2	2.4	3.6	30.9
	Saturday 51 10:10 a.m. - 11:00 a.m Schools.ccsd.net: School Site Web Templates Room 229	3	3.7	5.5	36.4
	Saturday 52 10:10 a.m. - 11:00 a.m InterAct™ Beginning Basics Room 225	2	2.4	3.6	40.0
	Saturday 54 10:10 a.m. - 11:00 a.m Your DESTINY: Searching State Standards via the Library Online Catalog Library	2	2.4	3.6	43.6
	Saturday 55 10:10 a.m. - 11:00 a.m Using Telecommunication in the Classroom Room 116	3	3.7	5.5	49.1
	Saturday 56 10:10 a.m. - 11:00 a.m iTunes U for K-12 Education Room 114	14	17.1	25.5	74.5
	Saturday 57 10:10 a.m. - 11:00 a.m iREAD! Room 117	4	4.9	7.3	81.8
	Saturday 58 10:10 a.m. - 11:00 a.m SMART Lessons…Instant Assessment...SMART Classroom! Room 201	6	7.3	10.9	92.7

	Saturday 59 a.m. - 11:00 a.m Assessment with Student Responders 135	10:10 Formative Room	3	3.7	5.5	98.2
	Saturday 61 a.m. - 11:00 a.m Booths * Cafeteria	10:10 Vendor	1	1.2	1.8	100.0
	Total		55	67.1	100.0	
Missing	System		27	32.9		
Total			82	100.0		

I attended the following session on Oct 24 at 11:10am:

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Saturday 63 11:10 a.m. - 12:00 p.m Basic Navigation of IDMS for Secondary Teachers Rodeo Room	1	1.2	1.8	1.8
	Saturday 64 11:10 a.m. - 12:00 p.m CCSD's Wiki-Teacher Room 227	6	7.3	10.9	12.7
	Saturday 65 11:10 a.m. - 12:00 p.m Tech Story: Digital Storytelling for Students Room 226	9	11.0	16.4	29.1
	Saturday 66 11:10 a.m. - 12:00 p.m Schools.ccsd.net: School Site Web Templates Room 229	4	4.9	7.3	36.4
	Saturday 67 11:10 a.m. - 12:00 p.m InterAct™ Beginning Basics Room 225	1	1.2	1.8	38.2
	Saturday 68 11:10 a.m. - 12:00 p.m Assistive Technology Resources Room 231	1	1.2	1.8	40.0
	Saturday 69 11:10 a.m. - 12:00 p.m Placemats: They're Not Just for Dinner Library	3	3.7	5.5	45.5
	Saturday 70 11:10 a.m. - 12:00 p.m Real Life Professional Development in Second Life Room 114	7	8.5	12.7	58.2
	Saturday 71 11:10 a.m. - 12:00 p.m Project-Based Learning with Brain Research Room 117	6	7.3	10.9	69.1
	Saturday 72 11:10 a.m. - 12:00 p.m SMART Lessons…Instant Assessment...SMART Classroom! Room 201	6	7.3	10.9	80.0
	Saturday 73 11:10 a.m. - 12:00 p.m Cool, Engaging Interactive Curriculum Ideas! Room 135	5	6.1	9.1	89.1

	Saturday 74 a.m. - 12:00 p.m SN's Tool Shed Room	11:10 CUE-CUE	2	2.4	3.6	92.7
	Saturday 75 a.m. - 12:00 p.m Booths * Cafeteria	11:10 Vendor	3	3.7	5.5	98.2
	Did not attend a session during this time		1	1.2	1.8	100.0
	Total		55	67.1	100.0	
Missing	System		27	32.9		
Total			82	100.0		

I attended the following session on Oct 24 at 1:10pm:

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Saturday 76 1:10 p.m. - 2:00 p.m Blended Classrooms using Moodle Room 165A	3	3.7	5.5	5.5
	Saturday 77 1:10 p.m. - 2:00 p.m Overview of the K-5 Elementary Standards-Based Report Card Rodeo Room	2	2.4	3.6	9.1
	Saturday 78 1:10 p.m. - 2:00 p.m CCSD's Wiki-Teacher Room 227	1	1.2	1.8	10.9
	Saturday 79 1:10 p.m. - 2:00 p.m Tech Story: Digital Storytelling for Students Room 226	4	4.9	7.3	18.2
	Saturday 80 1:10 p.m. - 2:00 p.m CCSD Web Applications: my.ccsd.net and ccsdtv.net Room 229	6	7.3	10.9	29.1
	Saturday 81 1:10 p.m. - 2:00 p.m InterAct™ Advanced Tips & Tools Room 225	5	6.1	9.1	38.2
	Saturday 82 1:10 p.m. - 2:00 p.m CultureGrams Room 231	2	2.4	3.6	41.8
	Saturday 83 1:10 p.m. - 2:00 p.m Chat with the CTO Library	3	3.7	5.5	47.3
	Saturday 84 1:10 p.m. - 2:00 p.m Document Cameras: Not Just for Clean Hands! Room 116	5	6.1	9.1	56.4
	Saturday 85 1:10 p.m. - 2:00 p.m RTI, Special Ed., and How to Engage CCSD Students! Room 114	1	1.2	1.8	58.2
	Saturday 86 1:10 p.m. - 2:00 p.m Project Based Learning with Brain Research Room 117	6	7.3	10.9	69.1

	Saturday 87 p.m. - 2:00 p.m Formative Assessment with Student Response Systems	1:10 Room 201	6	7.3	10.9	80.0
	Saturday 88 p.m. - 2:00 p.m Cool, Engaging Interactive Curriculum Ideas!	1:10 Room 135	3	3.7	5.5	85.5
	Saturday 89 p.m. - 2:00 p.m CUE-SN's Tool Shed	1:10 CUE-CUE Room	4	4.9	7.3	92.7
	Saturday 90 p.m. - 2:00 p.m Vendor Booths * Cafeteria	1:10	3	3.7	5.5	98.2
	Did not attend a session during this time		1	1.2	1.8	100.0
	Total		55	67.1	100.0	
Missing	System		27	32.9		
Total			82	100.0		

I attended the following session on Oct 24 at 2:10pm:

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Saturday 91 2:10 p.m. - 3:00 p.m Enhance Student Learning Using Student-Produced Videos Room 165A	7	8.5	12.7	12.7
	Saturday 92 2:10 p.m. - 3:00 p.m Building your Professional Learning Network (PLN) Rodeo Room	1	1.2	1.8	14.5
	Saturday 93 2:10 p.m. - 3:00 p.m Using Online Discussion Forums in the Classroom Room 227	4	4.9	7.3	21.8
	Saturday 94 2:10 p.m. - 3:00 p.m Voicethreads: A Picture is Worth a Thousand Words Room 226	3	3.7	5.5	27.3
	Saturday 95 2:10 p.m. - 3:00 p.m CCSD Web Applications: my.ccsd.net and ccsdtv.net Room 229	4	4.9	7.3	34.5
	Saturday 96 2:10 p.m. - 3:00 p.m SOLIA: Students Online with InterAct™ Room 225	3	3.7	5.5	40.0
	Saturday 97 2:10 p.m. - 3:00 p.m Video Streaming & Other Free Teacher Resources from Vegas PBS Room 231	4	4.9	7.3	47.3
	Saturday 98 2:10 p.m. - 3:00 p.m Using Digital Storytelling Projects in the Classroom Library	11	13.4	20.0	67.3
	Saturday 99 2:10 p.m. - 3:00 p.m Capture Their Thoughts with the Interactive Classroom using TI-Navigator? Room 116	1	1.2	1.8	69.1
	Saturday 100 2:10 p.m. - 3:00 p.m ParentLink as an Effective Tool for Teachers Room 114	3	3.7	5.5	74.5
	Saturday 101 2:10 p.m. - 3:00 p.m A Fluency Solution: Read Naturally's SE Version Room 117	2	2.4	3.6	78.2

	Saturday 3:00 p.m	102 Technology in the Music Classroom	2:10 p.m. - Room 201	1	1.2	1.8	80.0
	Saturday 3:00 p.m	103 Express Yourself! (Student Response System)	2:10 p.m. - Room 135	3	3.7	5.5	85.5
	Saturday 3:00 p.m	104 CUE-SN's Tool Shed	2:10 p.m. - CUE Room	3	3.7	5.5	90.9
	Saturday 3:00 p.m	105 Vendor Booths *	2:10 p.m. - Cafeteria	4	4.9	7.3	98.2
	Did not attend a session during this time			1	1.2	1.8	100.0
	Total			55	67.1	100.0	
Missing	System			27	32.9		
Total				82	100.0		

I attended the following session on Oct 24 at 3:10pm:

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Saturday 106 3:10 p.m. - 4:00 p.m Photo Story with a Punch! Room 165A	14	17.1	25.5	25.5
	Saturday 107 3:10 p.m. - 4:00 p.m Classroom Blogging: Taking It To The Next Step Rodeo Room	6	7.3	10.9	36.4
	Saturday 108 3:10 p.m. - 4:00 p.m Using Online Discussion Forums in the Classroom Room 227	1	1.2	1.8	38.2
	Saturday 109 3:10 p.m. - 4:00 p.m Promoting Creativity and Community with Blogging Room 226	1	1.2	1.8	40.0
	Saturday 110 3:10 p.m. - 4:00 p.m Sketchpad LessonLink for Geometer's Sketchpad Room 229	1	1.2	1.8	41.8
	Saturday 111 3:10 p.m. - 4:00 p.m Create Your Own Webpage: Simple and Free Room 225	5	6.1	9.1	50.9
	Saturday 112 3:10 p.m. - 4:00 p.m Video Streaming & Other Free Teacher Resources from Vegas PBS Room 231	4	4.9	7.3	58.2
	Saturday 113 3:10 p.m. - 4:00 p.m Resource Center Databases in the Library – Includes Science Resource Center and Opposi	2	2.4	3.6	61.8
	Saturday 114 3:10 p.m. - 4:00 p.m Capture Their Thoughts with the Interactive Classroom using TI-Navigator? Room 116	1	1.2	1.8	63.6
	Saturday 115 3:10 p.m. - 4:00 p.m ParentLink as an Effective Tool for Teachers Room 114	5	6.1	9.1	72.7
	Saturday 116 3:10 p.m. - 4:00 p.m A Fluency Solution: Read Naturally's SE Version Room 117	2	2.4	3.6	76.4

	Saturday 4:00 p.m	117 Technology in the Music Classroom	3:10 p.m. - Room 201	3	3.7	5.5	81.8
	Saturday 4:00 p.m	118 Express Yourself! (Student Response System)	3:10 p.m. - Room 135	3	3.7	5.5	87.3
	Saturday 4:00 p.m	120 Vendor Booths * Cafeteria	3:10 p.m. -	5	6.1	9.1	96.4
	Did not attend a session during this time			2	2.4	3.6	100.0
	Total			55	67.1	100.0	
Missing	System			27	32.9		
Total				82	100.0		

FASTT Math

The FASTT Math project was expanded to another 10 schools, with the software and workstations provided through other grant funding. Teachers received professional development from FASTT Math and follow-up professional development offered by ECSs and CPDD staff. A new server was purchased and put in service to handle the increased capacity needs of having more schools utilizing the program.

FASTT Math Year One Lessons Learned

Spring 2010

1. To efficiently provide access to the software and database for record-keeping, CPDD purchased (through alternative funding) a Mac server.

   The new server version is web-based, allowing for easier deployment at school sites and possible access for students from off-campus locations.

2. In the fall of 2009, elementary schools were recruited for participation. By the end of January, schools had responded and been given the software (through other grant funding).

   - Professional development and support will start at the beginning of the school year for the schools identified to participate.
   - More frequent training for ECSs, teachers, and administrators will be scheduled using an online webinar format.

3. It was time consuming to obtain rosters for participating schools. These were requested through ECSs.

   - Rostering will be done with the help of technicians at TISS.
   - Rostering will be done by count day.

- A rostering scheme that will allow for smooth implementation at the middle school level, where students may be enrolled in multiple math classes, will be discuss with the FasttMath technician.

4. Implementation at sites was low. Only 36% of the students enrolled used the program for recommended weekly frequency, three times or more per week. An additional 48% of students used the program, but with less frequency. This group is made up of student who may have only completed the initial assessment or students who used the program regularly, but fewer than three times per week.
    - Beginning of the year implementation may help.
    - Monthly reports will be shared with the site administrators.
5. Both Taylor and Cortez Elementary Schools had a significant number of students participate three or more times per week (65% and 53% respectively).
    - Of the students using the software at Taylor ES, nine students are fluent (97% or greater Fast Facts), 24 students are near fluent (between 80% and 97% Fast Facts), and 78 students are developing (between 50% and 80% Fast Facts). At Taylor ES 182 students used the program three or more times per week.

Of the students using the software at Cortez ES, five students are fluent (97% or greater Fast Facts), 13 students are near fluent (between 80% and 97% Fast Facts), and 91 students are developing (between 50% and 80% Fast Facts). At Cortez ES 196 students used the program three or more times per week. Please note that the Formula grant provided funding for the professional development and teacher support. Equipment and software were purchased through other funding sources.

Whiteboard Training

Five professional development workshops were provided for district teachers using electronic whiteboards. These were facilitated by district staff who have been certified as trainers by the whiteboard vendors. Two of our instructors have begun or scheduled PDE classes (since the start of 2010) that consist of three face-to-face meetings and time outside of class (total time: 15+ hours). At least one other trainer will be scheduling a PDE class.

- We conducted training in the fall semester for teachers at two sites on both 11/7 and 11/21. A total of 278 participants received training.
- Also, completed spring semester trainings for March 6th and 20th. Two sites were used for both days, and spaces available for 240 teachers. These trainings focused on advanced skills and student response systems.
    - 156 responses have been received from training surveys.
    - Survey responses show majority rating favorable agreement or meeting of objectives for the trainings.

Smartboard and Notebook Beginning training results

1. Objective 1: Participants will understand the basic set-up of their board/components and how to configure their board for use.		
Objective not met	2	2%
Objective met	69	63%
Objective exceeded	38	35%
Total	109	100%

2. Objective 2: Participants will be able to describe and use the components of the side tab bar (page sorter, gallery, attachments, properties tabs).		
Objective not met	3	3%
Objective met	71	65%
Objective exceeded	35	32%
Total	109	100%

3. Objective 3: Participants will be able to describe, use, and modify the tools associated with the main tool bar.		
Objective not met	3	3%
Objective met	73	67%
Objective exceeded	33	30%
Total	109	100%

4. Objective 4: Participants will be able to describe and modify an object's properties.		
Objective not met	6	6%
Objective met	76	70%
Objective exceeded	27	25%
Total	109	100%

5. Objective 5: Participants will be able to describe and use the items located in the resource gallery and locate resources online.		
Objective not met	2	2%
Objective met	74	68%
Objective exceeded	33	30%
Total	109	100%

6. I will be able to use information or skills from this professional development within the next month		
Yes	97	90%
No	11	10%
Total	108	100%

7. Multicultural resources and strategies were integrated into this professional development session.		
Yes	70	65%
No	37	35%
Total	107	100%

8. Reading and writing instructional strategies were integrated into this professional development session.		
Yes	103	95%
No	5	5%
Total	108	100%

9. Mathematics instructional strategies were integrated into this professional development session.		
Yes	101	94%
No	7	6%
Total	108	100%

10. I would appreciate additional training on...
27 Responses

Smartboard and Notebook Intermediate Results

1. Objective 1: Participants will be able to describe and modify an objects properties (order, linking, animation).		
Objective not met	3	6%
Objective met	29	59%
Objective exceeded	17	35%
Total	49	100%

2. Objective 2: Participants will be able to describe and model ten ways to add interactivity to their SMART lessons.		
Objective not met	6	12%
Objective met	26	53%
Objective exceeded	17	35%
Total	49	100%

3. Objective 3: Participants will be able to describe and use SMART Notebook's ink aware tool with Microsoft Word, Excel, and PowerPoint.		
Objective not met	10	20%
Objective met	30	61%
Objective exceeded	9	18%
Total	49	100%

4. Objective 4: Participants will be able to add items to the resource gallery and locate resources in the lesson activity toolkit.		
Objective not met	4	8%
Objective met	29	59%
Objective exceeded	16	33%
Total	49	100%

5. I will be able to use information or skills from this professional development within the next month		
Yes	46	94%
No	3	6%
Total	49	100%

6. Multicultural resources and strategies were integrated into this professional development session.		
Yes	31	66%
No	16	34%
Total	47	100%

7. Reading and writing instructional strategies were integrated into this professional development session.		
Yes	45	94%
No	3	6%
Total	48	100%

8. Mathematics instructional strategies were integrated into this professional development session.		
Yes	46	94%
No	3	6%
Total	49	100%

9. I would appreciate additional training on...
19 Responses

Promethean board and ActivInspire beginning training

1. I understand the basic setup of my Promethean board and how to calibrate it.		
Strongly Agree	15	65%
Agree	7	30%
Disagree	1	4%
Strongly Disagree	0	0%
Not Sure	0	0%

2. I understand how to locate and download online resources.		
Strongly Agree	11	48%
Agree	11	48%
Disagree	1	4%
Strongly Disagree	0	0%
Not Sure	0	0%

3. I am able to use the ActivInspire Dashboard comfortably.		
Strongly Agree	6	26%
Agree	11	48%
Disagree	5	22%
Strongly Disagree	0	0%
Note Sure	1	4%

4. I can describe to someone the use of the tools located on the main tool bar.

Strongly Agree	6	26%
Agree	12	52%
Disagree	2	9%
Strongly Disagree	0	0%
Not Sure	3	13%

5. I am able to use the tools located on the main tool bar comfortably.

Strongly Agree	7	30%
Agree	11	48%
Disagree	3	13%
Strongly Disagree	0	0%
Not Sure	2	9%

6. I am able to customize the tools associated with the main tool bar.

Strongly Agree	3	13%
Agree	12	52%
Disagree	5	22%
Strongly Disagree	1	4%
Not Sure	2	9%

7. I am able to edit an object's properties using the editing tools and/or the editing menu.

Strongly Agree	5	22%
Agree	9	39%
Disagree	4	17%
Strongly Disagree	2	9%
Not Sure	3	13%

8. I can describe and use the Page Browser and the Notes Browser.

Strongly Agree	4	17%
Agree	10	43%
Disagree	5	22%
Strongly Disagree	1	4%
Not Sure	3	13%

9. I am able to describe the items located in the resource library.

Strongly Agree	5	22%
Agree	8	35%
Disagree	6	26%
Strongly Disagree	1	4%
Not Sure	3	13%

10. I am able to use the items located in the resource library.

Strongly Agree	5	22%
Agree	9	39%
Disagree	5	22%
Strongly Disagree	1	4%
Not Sure	3	13%

11. I am confident in my ability to create a Promethean Flipchart using the skills listed above.

Strongly Agree	5	22%
Agree	9	39%
Disagree	3	13%
Strongly Disagree	3	13%
Not Sure	3	13%

Equipment to Support Technology Projects

- Pathlore upgrade
    - In September 2009, the upgrade was done for the Pathlore System. During the project, some outstanding issues were resolved but they did not affect the implementation and use during the first part of the school year.
- Moodle server for online PD
    - All systems are 'Go' on the moodle server. We were able to successfully install, test and migrate our Moodle instance onto the new server in May, complete with an offsite backup system. It currently houses all the online professional development courses for CCSD and the Nevada Pathway Project as well as provides a web presence for the Pathway Project, with news/updates and article features from most administrators and teachers involved. The server handles traffic of around 25-35,000 hits a week on the moodle site and up to 1,300 hits/week on the Pathway website.

Humboldt County School District

Title II-D Year End Report

Grant Number (Example APH PA 2000)**:**
Applicant Organization: Humboldt County School District
Title of Project: Administrative Walk Through/Technology Update
Project Period: July 1, 2010 – June 30, 2011
Program Director: Dr. David Jensen Title: Assistant Superintendent Street Address: Line 1: 310 East Fourth Street City: Winnemucca State: NV ZIP: 89445 E-mail: djensen@humboldt.k12.nv.us Telephone: 775-623-8196 Fax: 775-623-8102

Program Statistics

Tablet/E-Walk:

Female Youth Participants

I-Pads	Elementary	Middle	HS	District	Total
Total	3	3	4 (incl. McD)	2	12

Upon notification of a successful grant application, Humboldt County School District proceeded with the securing of 12 Tablet systems to facilitate an Administrative Walk-Through Template. The E-Walk system was utilized as the primary tool to support the walk-through format. The intent of utilizing the E-Walk template was to provide for a uniform measure that could be implemented within all grade levels throughout the District.

In support of this project, professional development was sought for the HCSD administrative staff on the E-Walk model. Specifically, the training was designed in two parts: a) district office training on E-Walk template development based on our defined observational objectives; and b) training for all administrative personnel on the implementation of the program.

The 2010-2011 school year was designed as the training year in preparation for full implementation during the 2011-2012 school year. As such, administrative personnel developed and began to utilize the system. Over the course of the year, three different templates were developed and implemented. Each template and number of applications are provided:

- 3 minute – 36 walk through
- District Form – 12 walk through
- HCSD Template – 92 walk through
- Total – 140 walk through

The intent of this developmental period was to provide a refinement of the template and to begin to develop an understanding and buy in of our teaching staff. Each administrative staff member met with his/her staff to introduce the E-Walk program, to review the various templates, discuss the intent of the system, and the sharing of information.

To support an effective implementation of the system, the HCSD technology department purchased and installed wireless capabilities at each location. As a result, upon completion of the walk through process, the administrative staff member would return to his/her office and download the walk through data. As part of this download, teaching staff that were observed on that date received an e-mail with summary data collected during the observational period.

Feedback on the E-Walk system has been overwhelmingly positive. Both administrative and certified staff members have begun to see the value in receiving ongoing and meaningful feedback regarding the instructional pedagogy occurring in the classroom. All parties have understood that this was a work in progress and each site and the district will be working to refine our process and the template. As we continue to evolve in with the development of our walk through format, it is anticipated that the following templates will be completed and implemented for the start of the 11-12 school year:

- General District-Wide 3 minute Walk-Through
- Expanded District-Wide Walk-Through (10-20 minute)
- Individual site Walk-Through (Based on SIP goals/objectives)
- Site based/Teacher developed Walk-Through

Funds were set aside for PD activities. A total of $1,750 was allocated, with $1,000 expended. An additional day of PD training was scheduled; however, the trainer's schedule was impacted not allowing them to return for the second day of training prior to the conclusion of the school year. We are hoping to incorporate additional PD during the 11-12 school year in support of E-Walk training and activities.

Technology Update:

As the district prepares for the technological needs associated with Common Core, funds were allocated to support the district's efforts to implement fiber connectivity. The district has committed, with construction having begun in July, for a transition from T1 to fiber connectivity. All associated costs with the fiber and construction are being funded through District General Fund dollars allocated to technology. This is supported through E-Rate funding. In preparation for this transition, and in an attempt to expand connectivity at individual schools, funds through Title II-D were used to address infrastructure needs to meet enhanced technology needs.

Funds were allocated in support of infrastructure, to include: switches, routers, UPS and MPLS upgrades.

Professional development was secured to provide assistance to the Technology Department to enhance technological skills to address technology issues internally as opposed to external contracts.

A+:

Humboldt County School District has placed a significant financial and time commitment to the full implementation of the A+ program. This has been implemented in support of both remedial and accelerated instruction. Roll out has occurred at the Junior High, High School, Alternative Education, and Rural School settings. Title II funds were allocated in support of the an additional 30 seats that could be utilized in an online capacity.

Currently, A+ is being utilized as the primary curriculum for our High School summer school program. At Lowry High School, currently approximately 110 students are taking advantage of the opportunities afforded through this program. The majority of students are participating in order to recover lost credits, while a number of students have also opted to utilize the opportunity to accelerate their instruction.

The district is continuing to expand the A+ program through GF and other funding sources with the express goal of implementing A+ into the elementary level, and to investigate expanded application of the program.

Washoe County School District

In March 2011 the Washoe County School District's Office of Staff Development held its third annual Technology Café event at the main campus of Truckee Meadows Community College (TMCC). There were over 145 WCSD teachers and staff in attendance, 101 of which had pre-registered and another 44 who signed in at the event.

2011's Technology Café was a four-hour event that offered participants two types of learning sessions. One type of session that was offered was rolling booth-style presentations held from 4 to 8 p.m. that provided basic informational overviews and demonstration to participants who visited. The other type of session was a scheduled presenter session held from 4:30 to 7:15 and offered more in-depth exploration and classroom implementation strategies. The presenter sessions were offered in three 45-minute panels in which participants could attend one of the three or four presenters scheduled during the timeslot.

In order to gather feedback from event participants, event organizers worked with the Center for Program Evaluation at the University of Nevada, Reno to develop a web-based evaluation survey that was made available to participants on computers in a lab at the event site. Sixty-nine event participants completed the evaluation at the site that day and another 47 completed it the following week in response to an emailed invitation and reminder. In all, 116 participants (80%) completed the evaluation of the event. Survey participants were mostly classroom teachers (66%); however, 34% were other WCSD staff members including resource teachers, counselors, and technology support staff.

The evaluation survey asked participants to indicate which booth and presenter session(s) they had attended. For each booth or presenter session participants attended they were asked to rate the extent to which:

(a) the presentation engaged them in learning (4-point response scale from "1" = "not at all" to "4" "very much")
(b) the presentation was useful in meeting their needs for technology professional development (4-point response scale from "1" = "not at all" to "4" "very"), and
(c) they were ready to implement what they learned from the presentation into their instructional practice. (4-point response scale from "0" = "not at all" to "3" "very ready")

Booth Session Participation and Evaluation

Each booth was attended by 13 to 50 survey participants. The booths with the highest reported participation were attended by more than 25 survey participants and listed in Table 1.[1]

Table 1. Booth Participation	% of Survey Participants
Booth	
iPad Petting Zoo	43%
KNPB-TeacherLine	38%
eLearning	28%
Wii In the Classroom	28%
Challenger Space Science Programs	24%
Promethean	24%

Nearly all participants rated each of the booth presentations they attended as engaging and useful. The booths that were rated most engaging were also rated as the most useful and included: Promethean, eLearning, KNPB TeacherLine, iPad Petting Zoo, and TMCC. Those booths were rated as "mostly" or "very much" engaging as well as "mostly" or "very" useful by the majority of attending survey participants (see Table on the top of next page).

[1] Other booths were attended by fewer than 25 survey participants and included Social Media (20% participated); Second Life Lab (16% participated); TMCC (12% participated); and WCSDvideo.org (11% participated)

For the most part, participants' perceptions of readiness to implement what they learned in the session were also correlated with higher engagement and usefulness ratings (see last two columns in Table 2). The exception is seen for the TMCC booth in which participants reported the lowest implementation readiness although the majority found the presentation highly engaging and useful.

Table 2. Booth Sessions - Engagement, Usefulness, and Readiness

Booth	(a) ENGAGEMENT		(b) USEFULNESS		(c) READINESS	
	Mean	"mostly" or "very much"	*Mean*	"mostly or "very"	*Mean*	"Almost ready" or "Ready"
Promethean	3.3	79%	3.1	65%	2.7	61%
eLearning	3.1	75%	3.1	70%	2.8	59%
KNPB -TeacherLine	3.0	66%	2.8	60%	2.6	54%
iPad Petting Zoo	3.0	64%	3.0	61%	2.4	50%
TMCC	3.0	64%	2.8	54%	1.7	18%
Wii in the Classroom	3.0	63%	2.7	50%	2.5	58%
Social Media	2.9	61%	2.9	58%	2.1	38%
Challenger Space Science Programs	2.8	61%	2.5	48%	1.9	32%
Second Life Lab	2.8	56%	2.4	45%	1.7	29%
WCSDvideo.org	2.7	50%	2.4	39%	1.9	36%

In responding to a prompt that asked participants how they might apply what they had learned at the booths to their own practice, the most popular responses included intentions to advocate for technology at their school site, engage students in 21st Century skills use, and most of all to implement a number of the technology tools (55% of all responses). In the figure below, a *Wordle* diagram illustrates the most common words contained in participant comments about how they would apply what they learned at the different booth presentations. Word frequency is illustrated, to scale, using font size as an indicator (larger font indicates higher frequency. The tools that were most often named in the comments for implementation included iPads (12%), Wii (9%), iPods (8%), Edmodo (7%), and Prezi (4%).

Presenter Sessions Participation and Evaluation

At least one presenter session was attended by the majority of survey participants. The first panel of presenters was attended by 84 survey participants (72%), the second panel by 80 (69%), and the third panel by 55 (47%). Although more participants reported attending presenter sessions overall, attendance was sometimes lower for each of the specific presenters than for booth sessions due to event participants having to make a choice between presenters during each session panel. Still, attendance ranged from 7 to 35 for each presenter. Attendance for each of the presenter sessions was highest for the *Prezi: Presenting in the Cloud* session followed by *Making Google Work for You*, Using *iPods in the Classroom*, and *Dropbox: Every Computer is Your Computer* (see Table 3 above).

Table 3. Presenter Session Participation Presenter Session	% of Survey Participants	% of Panel Attendance
Panel I (4:30-5:15 p.m.)		
Make Google Work for you	23%	32%
Dropbox: Every Computer is Your Computer	20%	27%
Skype Video-conferencing	17%	24%
Microsoft Live @edu	12%	17%
Panel II (5:30-6:15 p.m.)		
Using iPods in the Classroom	20%	29%
What This Looks Like in the ES Classroom	17%	25%
Microsoft Outlook	17%	25%
Web 2.0 Tools/Edmodo	16%	21%
Panel III (6:30-7:15 p.m.)		
Prezi: Presenting in the Cloud	30%	64%
Engage Digital Learners through Homework	11%	24%
Using iPods in the Classroom	6%	13%

Table 4. Booth Sessions: Engagement, Usefulness, and Readiness

	(a) ENGAGEMENT		(b) USEFULNESS		(c) READINESS	
Presenter Sessions	*Mean*	"mostly" or "very much"	*Mean*	"mostly or "very"	*Mean*	"Almost ready" or "Ready"
What This Looks Like in the ES Classroom	3.7	95%	3.2	80%	2.5	45%
Engage Digital Learners through Homework	3.4	92%	3.3	85%	3.2	100%
Make Google Work for You	3.4	89%	3.2	78%	2.9	70%
Microsoft Outlook	3.4	80%	3.3	70%	2.7	60%
Using iPods in the Classroom	3.3	90%	2.9	70%	1.9	27%
Skype Video-conferencing	3.2	80%	2.7	69%	2.4	50%
Microsoft Live @edu	3.2	79%	3.2	79%	2.5	62%
Dropbox: Every Computer is Your Computer	3.2	78%	3.4	78%	3.1	83%
Prezi: Presenting in the Cloud	3.2	77%	3.1	72%	2.8	64%
Web 2.0 Tools/Edmodo	3.1	65%	3.2	71%	2.7	59%

Presenter sessions received the highest ratings for both participant engagement and usefulness as well as for implementation readiness. Nearly all participants rated each of the presentation sessions they attended as engaging and useful. As with the booth sessions, those presentation sessions that were rated most engaging were also rated as the most useful (see Table 4). Although each of the presenter sessions were rated as "mostly" or "very much" engaging as well as "mostly" or "very" useful by the large majority of attending participants, the most engaging and useful presenter sessions were: *What This Looks Like in the Classroom*, *Engage Digital Learners through Homework*. Strangely, the session rated most engaging and useful was also among the sessions associated with the least implementation readiness. Importantly, the presenter sessions seem to have achieved the goal of providing more of an in-depth examination and strategy session as indicated by participants' higher ratings regarding readiness to implement

what they learned in the session. Participants were especially ready to implement strategies from many of the presenter sessions including: *Engage Digital Learners in the Elementary School Classroom*, *Dropbox: Every Computer is Your Computer*, and *Make Google Work for You* (see last two columns in Table 4).

Presenter session participants were also asked to respond to a prompt that asked how they might apply what they had learned at the presentation to their own practice. Each session elicited different strategies for implementation (see Table below).

Session	# Responses	Identified Strategies (% of responses)
Make Google Work for you	20	• Calendar on Google (38%) • Sharing Google Docs and Calendar with Class (35%)
Skype Video-conferencing	14	• Connect to students outside of classroom (36%) • Connect students to people and resources outside of the classroom (28%)
Dropbox: Every Computer is Your Computer	15	• Collaborate with colleagues (33%) • Share documents, like homework assignments, with students (20%)
Microsoft Live @edu	5	• Help students and teachers to access Microsoft files at home (60%)
What This Looks Like in the ES Classroom	10	• Will use new technology presented in the classroom (40%) • (Tools named: Skype(3), Laptops, Wiki Page)
Using iPods in the Classroom	6	• Using less expensive iTouch/MP3 (33%) • Plan to prepare or find podcasts (33%)
Web 2.0 Tools/Edmodo	7	• Plans to further explore and use tools from resource list (100%) • Named a specific resource or tool they will implement (29%) • (Tools named: Animoto, MS Office Tutorials)
Microsoft Outlook	15	• Plan to use Outlook Calendar (46%)
Engage Digital Learners through Homework	11	• Engage students through technology in the classroom (55%) • (Tools named: iTunes U (3), ActivBoard (1))
Prezi: Presenting in the Cloud	22	• Use Prezi personally (14%) • Have students use Prezi for their own presentations (14%

Most event participants reported that they would participate and about half would also recommend it to other teachers. When asked what topics they were most interested in exploring in the future, participants most often referenced strategies for blogging, Google tools, and Microsoft tools.

Recommendation	% of Participants*
I would participate again	80%
I would recommend it to teachers	49%
I would recommend it to principals/admin.s	32%
I would not recommend it	3%

* Percentages do not sum to 100% - participants could select all that apply

Comment Highlights

"Great experience. I am relatively new to the technology experience and appreciated the resources offered."

"Great resources and the gallery of ideas from participants were useful to view how others will use."

"I will use some of the free software to help my students present their projects."

"All the booths help stimulate me into going further in using technology in the classroom."

In the Fall of 2010 Title II-D funds were used to support the creation and production of the iNNOVATE[22] eConference 2010, a hybrid online learning conference for technology professional development. The iNNOVATE[22] eConference offered school district staff technology professional development through two different session types, *Dip Your Toe* sessions for online technology exploration, and *Jump In with Both Feet* sessions that included both online and face-to-face components.

The conference's seven introductory *Dip Your Toe* sessions were aligned to one of the seven 21st Century skills identified by the National Education Technology Standards for Students (NETS-S) and correlated to the Partnership for 21st Century Skills (P21) framework. The *Jump In with Both Feet* sessions offered more in-depth coverage of the online tools and resources explored in the *Dip Your Toe* sessions. Although a third type of sessions, *Splash Zone* sessions, were originally scheduled for the week following the eConference, the sessions were cancelled due to lack of sufficient enrollment. *Splash Zone* sessions were intended to provide conference participants and opportunity for round table discussion of each of the NETS-S aligned session topics.

In the end, the 2010 eConference offered seven different *Dip Your Toe* sessions for two credit hours each and 16 *Jump In* sessions for varying credit hours. Thirty-four individual participants attended at least one session of the iNNOVATE[22] eConference October 4th through December 9th 2010. Participation ranged from 1 to 14 sessions with 80% of participants attending more than one session (Average participation = 3 sessions).

The sessions with the highest participation were:

- *Active Learning for the Active Teacher* (15 participants)
- *Dip Your Toe #1: Introduction to Creativity and Innovation* (14 participants)
- *Dip Your Toe #3: Introduction to Research and Information Fluency/Literacy* (10 participants)
- *iTunesU: Taking iTunes Beyond Music* (9 participants)
- *Dip Your Toe #2: Introduction to Communication and Collaboration* (9 participants)

Session attendees were asked to participate in three evaluation strategies over the course of the eConference. Beyond registering and attending eConference sessions, in order to obtain course credit, session participants had to complete three assigned tasks during their online participation. This included: reviewing the session tools and materials for their credit hours, participating in the session discussion board, and completing a session evaluation. Lastly, at the end of the eConference series, participants were asked to complete an exit survey.

Discussion Forum The seven introductory *Dip Your Toe* conference sessions were entirely online and required participants to investigate a series of Web 2.0 tools/resources and participate in the session's discussion forum. Specifically, participants had to post a reponse to a five-question discussion prompt and post and respond to at least two colleagues' posts.

In response to the five-question prompt, *Dip Your Toe* session participants indicated exploring the full range of Web 2.0 Tools and Resources. Although nearly all tools were explored by at least one conference participant, several tools and resources emerged as the most popular for exploration in each of the sessions as well as most favorite.

The most popular tools for exploration were identified by more than 70% of the session's participants reporting that they had explored the tool or resource as a part of their session. Across sessions these tools included (Note: Percentages in parentheses are the percent of session participants who indicated exploring the tool within the appropriate *Dip Your Toe* session):

DISCUSSION PROMPT

1. List all the tools/resources you explored.
2. What was your favorite tool/resource and why?
3. How might you use this tool/resource in your personal life?
4. How might you use this tool/resource to enhance your productivity or instruction?
   a. Describe an activity you might develop.
   b. Consider the NETS-S/P21 description of this skill and your CONTENT standards; where might they intersect?
5. How might you have students use this tool/resource in their learning?

- Teacher Tube (100%)
- Ideas to Inspire (100%)
- All Terrain Brain (100%)
- Evernote (100%)
- Technology Inspires - Self Directed Learning (100%)
- Doodle (100%)
- Resources for Productivity (100%)
- Big Picture Small World (88%)
- ExploraTree (88%)
- DebateGraph (75%)
- Webquests (75%)
- Professor Garfield (71%)
- CyberSmart (71%)
- Teaching with New Media (71%)
- UStream (71%)
- Technology Operations and Concepts (71%)

In the figure below, a *Wordle* diagram illustrates the popularity of the most explored technology tools and resources listed in the columns above. For those tools that were explored by more than half of each session's participants, the their level of popularity is illustrated, to scale, using font size as an indicator (larger font indicates higher popularity in terms of the proportion of session participants that explored each session's corresponding *Web 2.0 Tools and Resources*. Out of all the technology tools and resources, those which were identified as favorite by 75% or more participants who explored them made up

the most favorite *Web 2.0 Tools and Resources*. Based on the 75% criteria, 22 tools and resources emerged as a most favorite across the seven of the *Dip Your Toe* sessions. (Note: Percentages in parentheses indicate the percentage of participants who named the tool as a favorite out of all the participants who indicated exploring the tool or resource.):

- Skype (100%)
- Teacher Tube (100%)
- Ideas to Inspire (100%)
- All Terrain Brain (100%)
- Evernote (100%)
- Technology Inspires - Self Directed Learning (100%)
- Professor Garfield (100%)
- UStream (100%)
- Prezi (100%)
- Blogging (100%)
- Edutopia (100%)
- Edmodo (100%)
- ePals (100%)
- Animoto (100%)
- VoiceThread (100%)
- Wall Wisher (100%)
- iTunesU (100%)
- iPoddery (100%)
- Copyright for Educators (75%)
- Library of Congress (75%)

All discussion forum participants shared ways in which they would develop lesson plans and teaching strategies using their favorite tools and resources and many named the aligned NETS-S/P21 standards they observed[1]. Participants completed session evaluations for 92 of the 98 sessions attended (94%), approximately half of which were *Dip Your Toe* sessions (52%). Session evaluations represented participation across all of the *Dip Your Toe* sessions and the majority of the *Jump In* sessions (69%) that were offered. In addition, 27 conference participants (79%) completed the online exit survey in December 2010. Teachers who participated had enrolled in up to 45 credit hours in the iNNOVATE[22] eLearning Conference; 37% signed up for 15 credit hours and 25% for more. Participants were elementary (48%), middle (11%), high school (7%) teachers as well as other staff development administrators (33%) with an average of 13 years' experience in education (62% with 15 or more years). On both the session evaluation and on the follow-up exit survey, participants were asked to rate the usefulness of each of the sessions they participated in. Specifically, they were asked to indicated the extent to which they found the session content useful for improving their classroom instruction. The majority of *Dip Your Toe* session topics were rated as "mostly" or "very" useful as indicated by the *Mean* (average) ratings more than four in the Table 1 below.

Table 1. *Dip Your Toe* Session Usefulness Ratings

		Session Evaluation		Exit Survey	
		Response Rate	Rating	Response Rate	Rating
Dip Your Toe Session	# Attended	%	*Mean*	%	*Mean*
Dip Your Toe* Sessions Overall	**56**	**86%**	**--**	**21%**	**4.5**
#1: Creativity and Innovation	**14**	**100%**	**4.5**	**86%**	**4.4**
#2: Communication and Collaboration	**9**	**100%**	**4.4**	**100%**	**4.3**
#3 : Research and Information Fluency/Literacy	**10**	**80%**	**4.3**	**80%**	**4.5**
#4: Critical Thinking, Problem Solving,& Decision Making	**8**	**75%**	**4.5**	100%	4.0
#5: Digital Citizenship/Media Literacy	7	100%	4.0	86%	3.5
#6: Technology Operations and Concepts/ICT Literacy	7	100%	3.5	86%	4.0
#7: Life and Career Skills	3	100%	4.0	100%	3.7

Usefulness Response Options:
(1) Not at all useful (2) Somewhat useful (3) Moderately useful (4) Mostly useful (5) Very useful

[1] Data available in *Supplemental Data and Tables*

Although there are some slight differences between the ratings given at session end compared to at conference exit, the difference is not significant. The *Dip Your Toe* sessions rated as most useful were also the most attended, and include: *Introduction to Creativity and Innovation* (#1), *Introduction to Critical Thinking, Problem Solving, and Decision Making* (#4), and *Introduction to Communication and Collaboration* (#2) (see Table 1).

Jump In with Both Feet sessions received an even higher average response for usefulness than the *Dip Your Toe* sessions. Again, those sessions that were most attended received higher mean ratings. Usefulness ratings are detailed in the table below for those *Jump In* sessions that more than one participant attended and completed an evaluation. As noted by the bold face type, the top rated *Jump In* sessions included: *Active Learning for the Active Teacher*, *LiveBinders: Your 3-Ring Binder for the Web*, and *iTunes U: Taking iTunes Beyond Music* (see Table 2).

Table 2. *Jump In* Session Usefulness		Session Evaluation		Exit Survey	
***Jump In* Session**	# Attended	Attendees completing %	Usefulness Rating Mean	Attendees completing %	Usefulness Rating Mean
Jump In* Sessions Overall	**42**	**62%**	**--**	**10%**	**5.0**
Active Learning for the Active Teacher	**15**	**87%**	**5.0**	**27%**	**5.0**
Engaging with Games and Simulations	**4**	**100%**	**4.5**	**50%**	**4.5**
Google Site for your Classroom	**4**	**100%**	**4.5**	**50%**	**4.5**
How to Make Friends with Data and Influence Productivity: Google Forms	4	25%	4.0	25%	4.0
Internet Research and Activities for K-6	**4**	**50%**	**4.5**	**50%**	**4.5**
iTunes U: Taking iTunes Beyond Music	**9**	**100%**	**4.5**	**44%**	**4.5**
Who is the Kid Sitting in My Classroom?	3	0%	3.5	67%	3.5

Usefulness Response Options:
(1) Not at all useful (2) Somewhat useful (3) Moderately useful (4) Mostly useful (5) Very useful

The session evaluation also asked participants to rate the usefulness of the different learning components offered in the eConference (Table 3). The majority of participants (67-83%) found each of the learning components to be "mostly" or "very" useful; however, participants' ratings indicate that participants found the face-to-face and instructor communication and feedback to be the most useful compared to the other components (see Table 3).

Table 3. Component Usefulness	Usefulness		
Learning Component	# Ratings	Mean Rating	% "Very"
Online Tutorials	15	3.9	47%
Face-to Face Meetings	11	4.6	73%
Online Assignments	17	3.8	23%
Directions for Assignments	19	4.1	53%
Instructor Communication and Feedback	15	4.3	60%
Workload and Expectations	15	3.9	39%

Usefulness Response Options:
(1) Not at all useful (2) Somewhat useful (3) Moderately useful (4) Mostly useful (5) Very useful

On the session evaluation participants were asked to also share their perceptions of the session in terms of its strengths, what they might change about it, what they were still wondering about, and how they planned to use the information they learned in the lesson. All participants were able to respond to most questions regarding what they would take away and ideas for how they would incorporate what they learned into their classroom practice. Most often participants would emphasize the variety of tools and resources covered in the conference sessions and their satisfaction with their new exposure to the technology resources as the main strength of the conference session.

Comment Highlights – Session Strengths

"I appreciate how there are choices of sites to evaluate. It is obvious that the instructor has gone to a lot of work to choose sites that are valuable to teachers and that interest teachers of all grade levels."

"There were many sites that would be great for my grade level. Several of the others taking this session taught the same grade level, so the input they had was beneficial."

"The flexibility of partial face-to-face time and partial independent work."

"I was able to use the lessons immediately."

"This session was great because it was hands-on. We could sit at the computer and do exactly what we were being shown."

Most often participants were satisfied with the information they received through the conference sessions but sometimes were still wondering about how to integrate the strategies into their particular classroom, adjust for a different age-group, or fit the practice into their schedule.

In addition to usefulness ratings, the evaluation strategies asked participants about their intentions toward implementation (To what extent they will apply the session content to their classroom instruction)[2] and their implementation timeline (How soon they will apply what they learned in the session)[3]. In terms of intentions to apply what they learned to their classroom instruction, some tools were rated with a higher level of implementation planning as well as some were associated with quicker implementation timelines than others.

Table 4. *Dip Your Toe* –Implementation	*N*	*Extent will apply content*	*Timeline to implement*
Dip Your Toe Session Title		*Mean*	*Mean*
Intro to Life and Career Skills (#7)	3	4.7	2.3
Intro to Digital Citizenship/Media Literacy (#5)	7	4.3	2.4
Intro to Technology Operations and Concepts/ICT Literacy (#6)	7	4.3	2.4
Intro to Creativity and Innovation (#1)	14	4.3	2.2
Intro to Research and Information Fluency/Literacy (#3)	8	4.0	2.6
Intro to Communication and Collaboration (#2)	9	4.0	2.4
Intro to Critical Thinking, Problem Solving, and Decision Making (#4)	6	3.7	2.4

Based on the evaluations, the *Dip Your Toe* sessions that teachers planned to integrate most included *Introduction to Life and Career Skills*, *Introduction to Creativity and Innovation*, *Introduction to Digital Citizenship/Media Literacy*, and *Introduction to Technology Operations and Concepts/ICT Literacy* (See Table 4). For each of these sessions participant mean ratings were above four points indicating the majority of participants planned to incorporate "most" or "very much" of the content they learned from the session into their teaching practice. Anticipated time to implement averaged between immediately and after a little more practice for all the *Dip Your Toe* sessions with the quickest anticipated implementation timeline associated with *Dip Your Toe #3 Introduction to Research Information Fluency/Literacy* with a mean of 2.6 out of a possible three in which most participants planned to implement immediately.

[2] *Response Options: (1) Not at All; (2) Somewhat; (3) Moderately; (4) Mostly; (5) Very Much*

[3] *Response Options: (1) After A LOT more practice; (2) After a little more practice; (3) Immediately*

Implementation planning was also high for the content of the *Jump In* Sessions also, as detailed in Table 5. For those sessions attended and evaluated by more than one person, the majority of participants (50%) reported that they would incorporate "very much" of the content they learned from the sessions into their teaching practice. The majority of participants (59%) also indicated they were ready to apply the content from three of those sessions "Immediately;" those included: *Internet Research and Activities for K-6*, *Engaging with Games and Simulations*, and *iTunesU.*

Table 5. *Jump In* – Implementation

		Extent will apply content	*Timeline to implement*
Jump In Session	***N***	*Mean*	*Mean*
Internet Research & Activities for K-6	2	5.0	3.0
Engaging with Games & Simulations	4	5.0	2.8
Google Site for your Classroom	4	4.5	2.0
iTunesU: Taking iTunes Beyond Music	9	4.3	2.7

Technology Use and Change-in-Practice

The online conference format allowed teachers to participate in any of the 23 different sessions offered. Sessions covered many popular technology tools and their teaching applications. Participants were asked to rate their use for a number of technology tools that are often used in classrooms and the extent to which their use changed due to their eConference participation (see Table 6). At the time of the exit survey, the most frequently used tool, the Promethean ActiveBoard, was used daily by 45% of participants (see Table 6). Applications reported to be used at least once a month by the majority of participants indicate the highest use of Promethean, Google Tools, iPods, ANGEL Online, iTunes, and YouTube (Bold font). Those applications that demonstrated the greatest use and increased use were those tools that were directly targeted within the eConference sessions (purple font).

In terms of conference impact on technology use, participants were asked to indicate whether the session content had led to any change in the rate of their use of the 25 listed technology tools. At least half of the eConference participants indicated increasing their use of several tools in response to the information they learned throughout the conference sessions (see Table 7).

Table 6. Tech Use

Tool	#	Rate of Use	
		Mean	At least once a month
ANGEL Online	**22**	**2.7**	**61%**
Applets	16	1.3	12%
Augmented Reality	17	1.1	6%
BackFlip	15	1.0	0%
Cell Phones as Tools	15	2.0	27%
Digital Video	16	1.9	44%
Easy Grade Pro 4.0	13	1.8	16%
Facebook	17	3.2	48%
Google Tools	**19**	**4.3**	**80%**
Groupwise Calendar	16	2.6	38%
Inspiration	14	1.2	21%
InspireData	14	1.4	14%
iPods	**17**	**3.6**	**65%**
iTunes	**16**	**3.2**	**57%**
Jing	16	1.3	12%
MS Publisher	15	1.9	28%
netTrekker	14	1.0	0%
PBS Ed. Resources	16	2.1	50%
Podcasts	15	1.6	33%
Promethean	**18**	**4.6**	**85%**
Second Life	13	1.0	0%
Social Bookmarking	14	1.5	14%
Twitter	13	1.3	8%
Website Design	16	2.3	38%
YouTube	**18**	**2.2**	**56%**

Use was rated on a seven-point scale - "1" represented "Less than once a month" & "7" represented "Many times a day."

Table 7. Use Change

	#	Increased Use
Google Tools	19	77%
ANGEL Online	22	69%
PBS Ed. Resources	16	60%
Promethean	18	54%
YouTube	18	50%
iPods	17	50%
Digital Video	16	50%

The tools that were associated with the most increase in use were Google Tools, ANGEL Online, and PBS Educational Resources. For those technology tools, 60% or more of participants reported increased use.

When asked to briefly share some of the ways in which their participation in the eConference had changed their use of technology applications in their personal as well as professional life, teachers shared that the sessions had helped them to become better organized, more aware of available tools, and more comfortable with their technology proficiency overall. Although many participants commented generally about the many new tools and resources they had started using, most responded about specific tools they had begun using or using more frequently. Most often, these tools included Promethean boards, iTunes, and Google tools and resources.

Comment Highlights

"This was one of the best classes I have taken through the district." Please allow us to retake as this is something that you can get more out of all the time."

"I have begun using Google Docs/Calendar to share schedules and information with my colleagues."

"I attended the active classroom class and was very pleased to learn many new ways to use my Promethean Activboard."

"I am really glad that we have the opportunity to earn credit for something that is really useful."

"The Promethean board captivated me, has increased my class participation and test score!!!!"

"My awareness of internet safety instruction and ICT Literacy increased."

"I used iTunes to enrich curriculum"

"This was an extremely informative and well planned out class. I will be looking forward to taking another class in the future."

When asked to what extent they would recommend the eConference, 68% reported they would participate again and 26% reported they would recommend it to a fellow teacher or principal/administrator. When asked what other session(s) would you like to have offered next year, participants wanted more opportunities for the *Jump In* sessions as well as for the cancelled Splash Zone sessions. Based on the implementation readiness responses and usefulness ratings, the tools and topics that participants indicated needing further professional development were:

- Tools for Creativity and Innovation

  Amazing Web 2.0 Projects, Animoto, Digital Storytelling, GoAnimate, Gloster, iLife, Kerppof, and Museum Box
- Tools for Communication and Collaboration

  Blogging, Collaborative Online Projects, Digital Storytelling, Edmodo, ePals, Jing, Ning, PB Works/Wiki, Prezi, Skype., Slideshare, Social Bookmarking, Teacher Tube, Twitter, VoiceThread, Wall Wisher, You Tube, and Zooburst
- Setting up classroom Google sites

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