

Smart School Technology Program

S.B. 248 (2012)

S.B. 284 (2013)

Report of FY 2013
Update for FY 2014



Prepared by the

Utah State Office of Education

October 16, 2013

Brenda Hales, Deputy Superintendent
brenda.hales@schools.utah.gov

Sydnee Dickson, Director/Teaching and Learning
sydnee.dickson@schools.utah.gov

Rick Gaisford, Program Specialist
rick@dsdf.org

SB 248 Smart School Technology Program Status Report

The total amount of funds allocated through S.B. 248 is \$3,000,000. \$120,000 was set aside for evaluation of the program, leaving the remaining amount of \$2,880,000 available to fulfill the contract with iSchool Campus. The per seat amount provided by SB 248 is \$1808.00 for each of 1,593 seats. The first year evaluation of this cohort was prepared by Southern Utah University under the direction of Dr. Deborah Hill.

2012 – 2015 Cohort

Application submission period was May 7 through May 25, 2012. These Schools were approved by the State Board of Education on June 1, 2012.					
School	LEA	Seat Count	Allocation Amount	Matching Funds	Status
Gunnison Valley Elementary School	South Sanpete	450	\$813,600.00	Not Required	All computers and equipment installed, program is fully functioning
Dixon Middle School	Provo	900	\$1,627,200.00	Not Required	All computers and equipment installed, program is fully functioning
North Sevier High School	Sevier	243	\$439,344.00	Not Required	All computers and equipment installed, program is fully functioning

The total amount of funds allocated through S.B. 284 is \$2,400,000. \$120,000 was set aside for evaluation of the program, leaving the remaining amount of \$2,280,000 available to fulfill the contract with iSchool Campus. The per-seat amount provided by SB 284 is \$745.10 for each of 3,060 seats. Participating schools are required to have matching funds available during the first year of implementation.

2013 – 2016 Cohort

PHASE ONE					
Application submission period was May 13 through May 28, 2013.					
These Schools were approved by the State Board of Education on June 7, 2013.)					
These schools are now in various stages of implementation with the selected vendor, iSchool Campus					
School	LEA	Seat Count	Allocation Amount	Matching Funds	Status
Utah Career Path High School	Charter	175	\$130,392.50	\$130,392.50	All computers and equipment installed, program is fully functioning
Myton Elementary	Duchesne	164	\$122,196.40	\$122,196.40	Contract signed and equipment is ordered
Freedom Preparatory Academy	Charter	285	\$212,353.50	\$212,353.50	All computers and equipment installed, program is fully functioning
Beehive Academy	Charter	316	\$235,451.60	\$235,451.60	All computers and equipment installed, program is fully functioning
Subtotal		940	\$700,394.00	\$700,394.00	
The following approved schools have opted to withdraw from the program					
Rocky Mountain Middle School	Wasatch	859	Incompatibility of selected equipment		
Wasatch Peak Academy	Charter	422	Could not commit full matching funds		
Helper Junior High	Carbon	192	Incompatibility of selected equipment		
PHASE One Summary					
Total Seats Allocated		940	\$700,394.00	\$700,394.00	
Total Seats Still Available		2120			
Total Funds Still Available		\$1,579,612.00			

PHASE TWO					
Application submission period was July 16 through July 26, 2013. Schools were approved by the State Board of Education on August 2, 2013					
These schools are now in various stages of implementation with the selected vendor, iSchool Campus					
School	LEA	Seat Count	Allocation Amount	Matching Funds	Status
Pinnacle Canyon Academy Grades 7-12	Charter	326	\$242,902.60	\$242,902.60	Financing has been approved. Final Contract will be signed and equipment ordered with deployment beginning this month
North Davis Jr. High School Grades 7-9	Davis	1033	\$769,688.30	\$769,688.30	Contract signed and equipment is ordered. Deployment is beginning
Newman Elementary School Grades K-6	Salt Lake	500	\$372,550.00	\$372,550.00	District administration and board will have a final decision on this school's participation by 10-15-2013
Subtotal		1859	\$1,385,140.90	\$1,385,140.90	
PHASE Two Summary					
Total Seats Available After Phase 1				2120	
Total Seats Allocated		1859	\$1,385,140.90		\$1,385,140.90
Total Seats Still Available				261	
Total Funds Still Available				\$194,471.10	

Smart School Program Summary 2013-2014			
Total Seats Available	3060	\$2,280,000.00	\$2,280,000.00
Total Seats Allocated Phase 1 and 2	2799	\$2,085,534.90	\$2,085,534.90
Total Seats Still Available	261	\$194,471.10	\$194,471.10

SMART SCHOOL TECHNOLOGY PROJECT



**YEAR ONE EVALUATION
JUNE 2013**

Executive Summary

The Smart School Technology Project, as defined by SB 248: Smart School Technology Act provides funding to develop technology solutions related to economic and workforce development, in this case the use of mobile devices in Utah public schools. Under the direction of Rick Gaisford in the Utah State Office of Education, schools were selected to participate in the project through an application for funding process. Three schools were chosen to be 100% funded for the project during the 2012-13 academic year: Gunnison Valley Elementary School (South Sanpete School District), Dixon Middle School (Provo School District) and North Sevier High School (Sevier School District).

The project evaluator was chosen through a grant process offered through the Utah State Office of Education, and was awarded to Southern Utah University, College of Education and Human Development. Funding for the project evaluation was transferred to SUU in April, 2013. The project evaluation will address two key questions: (1) Why, or why not, do the participants use mobile technology and (2) What manner does the use of mobile technology make a difference in [(a) student achievement, (b) instructional strategies, and (c) affective characteristics such as motivation, efficacy and attitudes?]

Year-One data will benchmark average student achievement and average student attendance, by teacher, over the past three years (controlled variable). Year-Two and Year-Three data will examine student achievement for the current academic year, student attendance and instructional strategies used by teachers (dependent variables). Student achievement and attendance, by teacher/site, will be compared against the benchmarked achievement and attendance for that teacher/site. Instructional strategies will be self-reported, by teacher, in collaboration with iSchool Campus and site administrators.

iSchool Campus was awarded the contract for the implementation of the Smart School Technology Project. The mission of iSchool Campus is to provide the most advanced turn-key technology available to empower education's most important resource - the teacher. Working with district's respective information technology departments, iSchool Campus conducted installation of the necessary hardware and wireless applications at each of the participating school campuses where necessary. Professional development for faculty, staff and administrators included a range of topics from basic navigation on the iPad or MacBook Pro laptop to advanced tips including the use of multi-touch features on the unit. iSchool Campus conducted routine visits to the schools (weekly) and were available for support via email, text and phone on a 24/7 basis.

In Year-One, teachers continually received professional development in basic use of the iPad and the integration of mobile technology into instruction. Specific apps were developed or purchased to enhance the learning opportunities for students. Use of mobile technology varied between teachers and sites. Students adapted to using mobile technology quickly, learning how to maneuver between apps and appropriate learning sites. Student academic achievement reported is based on teacher data, yet there is a strong indication that the use of mobile technology has improved the learning opportunities and outcomes for many students participating in the project.

Dr. Deborah Hill, Southern Utah University, Lead Evaluator

Dr. Rick West, BYU and Dixon Evaluator

Dr. Bart Reynolds, SUU and Gunnison Valley Elementary and North Sevier High School Evaluator

Jan Neth, SUU Evaluation Report Editor

Year One: Smart School Technology Project Report

Summary of SB 248 – Smart School Technology Act

Senate Bill 248, Chief Sponsor, Jerry W. Stevenson, House Sponsor, Stephen G. Handy, created the Smart School Technology Act. Utilizing funding provided through the state's general fund, Industrial Assistance Account, the purpose of the act is to develop technology solutions related to economic and workforce development; in this case the use of mobile devices in Utah public schools.

Through a request for proposal process, specifying various electronic components, operating software, professional development for educators and technological specialists, a private education technology provider was chosen to develop and implement the program. Participating schools were chosen through an application process by the State Board of Education where selection was based on diversity of urban and rural schools and locations of the schools within the state. Pursuant to S.B. 248, evaluation of the program was contracted by the State Board of Education to an independent evaluator. <http://le.utah.gov/~2012/bills/sbillint/sb0248s02.pdf>

Overview of Evaluation Process

The three year evaluation of the Smart School Technology Project will utilize two overarching research questions considering three populations; students, teachers and administration (Appendix A). The first variable in the evaluation is why, or why not, the participants use mobile technology in their learning/teaching/management and leadership environment. The second variable addresses in what manner does the use of mobile technology make a difference in: (a) learning achievement, (b) instructional strategies, and (c) affective characteristics (motivation, efficacy, attitudes, etc.).

A useful way to understand variables is to consider them in a cause-and-effect relationship. What variables influence outcomes?

1. What outcomes will this evaluation explain? (Dependent variable: (A) Student Achievement, (B) Student Attendance, and (C) Instructional Strategies)
2. What variables or factors influence the outcomes? (Independent variable: technology)
3. What variables need to be measured (controlled)? (Student achievement and attendance variance)

Year-One data will benchmark average student achievement and average student attendance, by teacher, over the past three years (controlled variable). Year-Two and Year Three data will include student achievement for the current academic year, student attendance and instructional strategies used by teachers (dependent variables). Student achievement and attendance, by teacher/site, will be compared against the benchmarked achievement and attendance for that teacher/site. Instructional strategies will be self-reported, by teacher, in collaboration with iSchool Campus and site administrators.

Year-One. Procurement of the funding for the evaluation project occurred in April, 2013. On April 15, 2013, project evaluators met with, iSchool Campus (the technology provider), Dixon Middle School (one of the selected participant schools), Provo School District IT (representing the IT needs of Dixon) and Rick Gaisford (USOE) at Dixon Middle School. Initial meetings with the two other selected participant schools and their respective districts, Gunnison Valley Elementary School, North Sevier High School, South Sanpete and Sevier School District IT, project evaluators, iSchool Campus, and Rick Gaisford ensued at school sites on April 29, 2013. Additional meetings with the participant schools and project evaluators continued through May and June 2013.



iSchool Campus

iSchool Campus was awarded the contract for the implementation of the Smart School Technology Project. The mission of iSchool Campus is to provide the most advanced turn-key technology available to empower education's most important resources - the teacher (<http://ischoolcampus.com/education/>). iSchool Campus delivers a holistic 'Smart School', offering a learning environment with mobile devices for each student, high-speed internet access, secure wired and wireless networks, interactive collaborative education software, classroom management and analytical tools, professional development and ongoing technical support.

In order to operate the mobile devices and associated hardware efficiently, iSchool Campus conducted installation of the necessary hardware and wireless applications at each of the participating school campuses where necessary, working with the district's respective IT departments. In addition, iSchool Campus uploaded curriculum appropriate apps for students, teachers, staff and administration (Appendix B). Selection of apps was based on best practices in instruction and learning, digital learning research and individual site requests (Appendix C). iSchool Campus reviewed online content prior to providing web addresses to participants in the project (Appendix D).



Gunnison Valley Elementary School (GVES)

One of three elementary schools in South Sanpete School District (Manti, UT), GVES serves approximately 563 students in grades PK-5. In 2011, GVES had 23 students for every full-time equivalent teacher, which is higher than the Utah state average ratio of 22:1. Fifty-three percent of the student population is male, 47% is female. GVES student ethnicity equates to: 84% Caucasian, 13% Hispanic, 1% African American, 1% Asian/Pacific Islander and 1% Native American (16% minority enrollment in the student body). Thirty-seven percent of the student population is eligible for free lunches (UT average = 31%). Sixteen percent of the student population is eligible for reduced price lunches (UT average = 8%). GVES employs twenty-four classroom teachers and Grant Hanson as Principal. South Sanpete School District includes seven schools serving approximately 3,123 students in grades PK-12.



Implementation. iSchool Campus added two new hardwire runs to each classroom, one line for the supportive Apple iTV and one for a wireless internet access point (AP). Each classroom was provided an Apple iTV attached to an HDTV in addition to two Mac computer labs. The Apple iTV is a device that talks between the iPad and the HDTV for the purposes of presentations. Gigabit switches, to improve multiple computer network connections, and iBoss as a web filter were also installed. In order to allow iSchool Campus the ability to efficiently upgrade all iPads within the school as well as charge batteries, docking cabinets were provided. The docking cabinets house multiple iPads. GVES had previously installed enhanced audio systems throughout the school balancing out the system. In late October, iPads and MacBook Pro laptops were provided to each teacher, staff and administrator. Students were given access to their iPads the week of November 26, 2012. Damage to equipment was limited with one teacher's iPad being replaced.



Professional development for faculty, staff and administrators was presented on October 22-25, 2012. Topics ranged from basic navigation on the iPad or MacBook Pro laptop to advanced tips including the use of multi-touch features on the unit. iSchool Campus conducts routine visits to the schools (weekly) and are available via email, text and phone for support 24/7. "Training was specific and provided professional development so teachers felt capable of using the new technology" (Hanson, interview 2013).

Student use of the iPads at GVES is limited to the classroom and the on-campus experience. Students are not permitted to take the iPads home. In only one case, a student's parents opted out of the project with alternative tasks being assigned to the student mirroring mobile device assignments.

Data. Year-One evaluation sets the baseline achievement and attendance scores for GVES. Smart School Technology Project student achievement and attendance data will be benchmarked against an average over three years for each participating teacher. Technology hardware (labs/iPads/enhanced audio systems) was completed in early November 2012. Students received mobile devices late November 2012. Initial professional development training for the use of new technology occurred late October with follow-up throughout the remaining 2012/13 school year. The

grant also included funding for apps, allowing GVES to purchase additional apps for specific instructional needs. “In general, the paid apps were superior to the free apps” (Hanson, interview 2013). GVES created an advisory committee to review app purchase requests and other issues related to the Smart School Technology Project.

Principal Hanson reported that 100% of the teachers utilize the use of mobile technology in their classroom instruction. When researchers visited the site and observed several classrooms unannounced, every student had an iPad on their desk. If the student was not directly writing, composing, or creating on the device it was a resource for information. Students in a third grade classroom were sharing their notes via the iTV about the similarities and differences between Charlotte’s Web the book and Charlotte’s Web the movie. In a fourth grade classroom students were creating a Keynote science presentation for their peers about Utah’s natural birds. Students were accessing information via the Utah Education Association’s teacher website which contained safe web addresses, specifically identified for student research. Fourth grade teachers also indicated that students write more, and the writing is more complex. One teacher stated, “Kids see themselves as experts and they share their knowledge. Collaboration is improved.” In the first grade the students work on the 100 frequently used words. The iPad provided the platform for teachers to create 10 folders with ten words each for students working in partners. All students had access to the folders; eliminating an issue of limited resources. The teachers reported the students used class time more effectively. Principal Hanson noted that the down time for the gifted and talented students was lowered. Teachers had the resources to extend learning for these students. Students in the upper grades use eBackpack (similar to Goggle Docs) for their written assignments.

A survey was conducted of twenty teachers examining the use of iPads in instruction (Appendix E). Of those responding, 100% agreed with “I know at least 3 things about using an iPad I didn’t know before this year.” One-hundred percent agreed with “I can name 3 really good math apps.” Ninety-five percent responded that they’ve talked with their grade level Professional Learning Community about using the iPad. Eighty-five percent responded that their students use their iPads basically every day.

Student Achievement. “The following assessments have been on-going, providing teachers with immediate information on student learning” (Hanson, 2013).

- Accelerated Reading (computer-based program that challenges students with comprehension questions after reading a book. Points earned depend on the difficulty of the book and the percent of correct responses): GVES’s goal was for students to earn half a point a day. The school developed a special reward activity for the students that earn 100 points in the first 100 days of school. 211 students achieved that level, an increase of more than a thirty percent from the previous year. In the last three months of the 2012/13 school year, over ninety percent of the students earned over half a point a day.
- Study Island (computer program that differentiated instruction, and assists students in acquiring a mastery of Utah Core skills in language arts and math). USOE notified Principal Hanson that GVES students completed more problems per student than any other school in the United States.
- Utah State Assessments: Direct Writing Assessment scores were the highest the school has ever produced. Ninety-five percent of the students were assessed proficient. The four students who did not reach a proficient score have all been provided Individual Education Plans (IEPs). Fifty-six percent were at the highest level, “substantially sufficient”. Ninety-three percent of the fourth and fifth graders had proficient scores in science. Language arts scores remained equal

to the previous years. While preliminary mathematics scores do not allow for comparison with previous scores they appear to be similar to science and writing.

- DIBELS® (Dynamic Indicators of Basic Early Literacy Skills). DIBELS® are comprised of seven measures to function as indicators of phonemic awareness, alphabetic principle, accuracy and fluency with connected text, reading comprehension, and vocabulary: Over 90% of the first, second and third grade students are at “Benchmark” on their grade level reading skills as measured by DIBELS®. This data proves GVES one of the highest performing schools in Utah. (DIBELS® benchmark goals are empirically derived, criterion-referenced target scores that represent adequate reading progress. A benchmark goal indicates a level of skill where the student is likely to achieve the next DIBELS® benchmark goal or reading outcome. Benchmark goals for DIBELS® are based on research that examines the predictive validity of a score on a measure at a particular point in time, compared to later DIBELS® measures and external outcome assessments. If a student achieves a benchmark goal, then the odds are in favor of that student achieving later reading outcomes if he/she receives research-based instruction from a core classroom curriculum).

The 5th grade Direct Writing Assessment Proficient percentage was 87%. The CRT is a standards-based testing program measuring specific skills defined for each grade by the State. The goal is for all students to score at or above the proficient level. GVES’s Criterion Reference Test (CRT) scores for 2008-2001 are presented in Appendix F (Utah State Office of Education, 2013)



Principal Hanson:

“It is difficult to quantify student engagement. I have been a principal for twenty years, which means I’ve visited a lot of classrooms and have completed numerous teacher observations. Even in outstanding classes, it is typical that a student or two will be off task. In the teacher observations I have completed since we deployed the iPads, it is the rule that ALL students are on task. This is even true, as I have observed teachers who are not the best at classroom management.” (Hanson, interview 2013)

Utah Criterion Referenced Test Scores 2012-2013

		2012		2013	
		# of Students Proficient	% of Students Proficient	# of Students Proficient	% of Students Proficient
Gunnison Valley Elementary School	Language Arts				
	3rd Grade	80	78%	79	71%
	4th Grade	76	91%	82	80%
	5th Grade	86	80%	78	86%
	Mathematics				
	3rd Grade	79	80%	79	73%
	4th Grade	75	95%	82	90%
	5th Grade	87	83%	78	78%
	Science				
	4th Grade	77	91%	83	84%
	5th Grade	87	86%	78	91%

Dixon Middle School

Dixon Middle School, one of eight middle schools in Provo School District (Provo, UT), serves approximately 862 students in grades 7-8. In 2011, Dixon Middle School had 19 students for every full-time equivalent teacher (UT state average ratio = 22:1). Fifty-two percent of the student population is male, 48% is female. Dixon Middle School student ethnicity equates to: 61% Caucasian, 34% Hispanic,



3% Asian/Pacific Islander, 2% Native American, and 1% African American (minority enrollment is 39% of the student body). Forty-three percent of the student population is eligible for free lunches (UT average = 31%). Thirteen percent of the students are eligible for

reduced price lunches (UT average = 8%). Nine percent of the student population is English Language Learners. Students with disabilities make up 17% of the total student population. Dixon Middle School employs forty-five classroom teachers and Jarod Sites as Principal. The Provo School District includes 24 schools serving 13,769 students in grades PK-12.

Implementation. Recently, Provo School District IT completed re-wiring Dixon Middle School so no new hardwiring was necessary for this project. Each classroom is equipped with two wireless internet access points (APs). iSchool Campus installed a new wireless system and enhanced classroom audio equipment. Apple iTVs attached to HDTVs were installed in addition to the existing multimedia projectors. Docking cabinets in each 'home room' provide iSchool Campus the ability to upgrade each iPad as well as charge batteries. Dixon Middle School was also provided three new Mac and PC computer labs. Teachers, staff and administration received iPads and MacBook Pro laptops in late October, 2012. Students received their iPads the week of November 26, 2012. Students are allowed to take iPads home on Wednesdays. Due to hardware failure, iSchool Campus replaced two iPads.

Professional development was provided to teachers, staff and administration October 29 – 31, 2012. Topics ranged from basic iPad navigation (using buttons and icons) to multi-touch features and apps. iSchool Campus continues to provide 24/7 support via email, text, phone and routine personal visits to the school; checking equipment, needs of teachers, staff and administration and hardware (iPads and MacBook Pros).



Data. Year-One evaluation sets the baseline achievement and attendance scores for Dixon Middle School. Smart School Technology Project student achievement and attendance data will be benchmarked against an average over three years for each participating teacher.

Technology hardware (labs/iPads/enhanced audio systems) was completed in early November 2012. Students received mobile devices late November 2012. Initial professional development training for the use of new technology occurred late October with follow-up throughout the remaining 2012/13 school year. The grant included funding for apps so Dixon Middle School purchased additional apps for specific instructional needs. Dixon Middle School has a teacher committee that reviews app purchase requests

and other issues related to the Smart School Technology Project. The school also has a student advisory committee that meets regularly to assist the administration in addressing hacking and other technology driven student behaviors. Administration ranked teachers into two categories: *High User* of technology and *Low User* of technology. Of the twenty-two content teachers, there was an equal 50/50 split of High and Low Users. Of the eleven teachers ranked as Low Users, one was due to a hardware issue (the classroom could not accept a wireless connection) and ten were due to teacher behavior.

Teachers ranked in the High User category use Goggle Documents and iAssignments for homework and in-class assignment turn-in. A seventh grade Language Arts teacher used the journaling apps extensively for daily writing. The same teacher noted that initially writing assignments were less than two pages in length at the beginning of the school year. After the introduction of the iPad and Google Docs, paper length and quality greatly increased. The teacher reported that students responded favorably to feedback and teacher edits when the documents were electronically submitted and reviewed.

In one instance, an app for the architecture class was inadvertently uploaded school wide on the iPads. As students outside of the architecture class discovered the app on their iPads, it lead to several of them, not in the architecture course, submitting designs and requesting admittance to the course later in the school year.

Several teachers commented on the use of the enhanced audio systems impact on students' engagement in discussions. The teachers reported that they felt students could clearly hear instruction and were less likely to engage in inappropriate behavior. Teachers also reported less personal voice strain and that the afternoon classes received the same instruction as the morning classes, as in the past their voices often 'gave out'.

One teacher in the Low User category struggled with the basic operational functions of the iPad. When unsuccessful in their attempt the teacher quit trying did not seek assistance until queried by administration.



The 2011/12 Direct Writing Assessment Proficient percentage for the eighth grade was 79%.

Utah Criterion Referenced Test Scores 2012-2013								
		2012				2013		
			# of Students Proficient	% of Students Proficient		# of Students Proficient	% of Students Proficient	
Dixon Middle School	Language Arts							
		7th Grade	403	82%		423	86%	
		8th Grade	444	91%		426	90%	
	Mathematics							
		7th Grade Math	342	86%		368	85%	
		Pre-Algebra	258	62%		3	n<10	
		Geometry	54	100%		50	98%	
		Algebra I	184	93%		429	70%	
	Science							
		7th Grade	402	70%		426	71%	
		8th Grade	441	68%		424	63%	

North Sevier High School (NSHS)

North Sevier High School is one of four high schools in the Sevier School District (Richfield, UT). North Sevier High School serves 264 students in grades 9-12. NSHS has 19 students for every full-time equivalent teacher (UT state average ratio = 22:1). Fifty-four percent of the student population is male, 46% is female. NSHS student ethnicity equates to: 95% Caucasian, 3% Hispanic, 1% African American and 1% Unknown (minority enrollment is 5% of the student body). Twenty-nine percent of the student population is eligible for free lunches (UT average = 31%). Thirteen percent of the student population is eligible for reduced price lunches (UT school average = 8%). 2012 graduation rate for NSHS was 94%. NSHS employs 17 classroom teachers and Jill Porter as Principal. The Sevier School District includes 13 schools serving 4,794 students in grades PK-12.



Implementation. iSmart Campus re-wired the entire school, adding data ports to every classroom and office, including new gigabit switches. Each classroom was provided an Apple iTV attached to an HDTV and enhanced audio equipment. iBoss was installed as the web filter. The school's computer lab was updated with new Mac desktop computers. Toward the end of October 2012, teachers, staff and administrators received MacBook Pro laptops as well as an iPad. Students received their iPads mid-December 2012. The school conducted parental meetings regarding the program prior to checking iPads out to students, with two students' parents opting out of the program. Students may take home their iPads allowing 24/7 access to the device. iPads are updated when needed by iSchool Campus.

Professional development for faculty, staff, and administration was provided October 8 – 10, 2012. Topics ranged from basics (the use of buttons and icons) to advanced tips including multi-touch features and usage on iPads and MacBook Pro laptops. Weekly visits by iSchools Campus continued throughout the year with 24/7 availability via email, text and phone.

Data. Year-One evaluation sets the baseline achievement and attendance scores for NSHS. Smart School Technology Project student achievement and attendance data will be benchmarked against an average over three years for each participating teacher. Technology hardware (laptops/iPads/enhanced audio systems) was completed in late September. Students received mobile devices in late October. Initial professional development training for the use of new technology occurred in late October with follow-up throughout the remaining 2012/13 school year. The grant also included funding for apps. Students use the iPads to upload assignments via iAssignment and Dropbox as well as access to instructional sites identified through iBoss for research. Teachers and students have had some mishaps with Dropbox in regards to saving files. In one class the students uploaded their assignments for the teacher to evaluate, one student after opening up the file thought someone had added files to her personal file and deleted her peers assignments. Students received a mini-lesson in Dropbox.

Additional notable uses of the iPads are as follows: NSHS uses the app iNotify allowing teachers access to multiple forms of communication within the school (teacher to student, student to teacher, administration to school, etc.). Students identified as special needs had 100% of their homework turned in when researchers visited in April. Special education teachers indicated that students complete their tasks, are more organized and use eBooks for their reading assignments. Differentiated instruction based on student academic skills has been one benefit teachers noted. The science teachers have developed eBooks for their courses as well. Social Study teachers are working on eBooks for the next academic year. The library has eBooks that they check out (two weeks) through a community library. In the EMS course students are creating videos to teach topics including the script, layout and criteria for successful course completion.

A marked difference in cost for North Sevier High School has been the use of paper. Prior to the introduction of the iPad approximately 100,000 paper copies were made per month. In March the count was 32,466, April was 29,737 and May dropped to 7,816. If this trend continues next year, as well as the reduction in purchasing text books the cost saving should outweigh the cost of the iPads.

North Sevier High School's Criterion Reference Test (CRT) scores for 2008-2001 are presented in Appendix F (Utah State Office of Education, 2013).



North Sevier High School is a NWEA partner (Northwest Evaluation Association). State testing data is collected from NWEA partners. Individual scale score and performance level outcomes for each individual student are harvested. The NWEA assessments called MAP® (Measures of Academic Progress®) are computerized tests that are adaptive and offered in Reading, Language Usage Science and Mathematics. When taking a MAP® test, the difficulty of each question is based on how well a student answers all the previous questions. As the student answers correctly, questions become more difficult. If the student answers incorrectly, the questions become easier. Optimally, a student would answer approximately half the items correctly and half incorrectly. The final score is an estimate of the student’s achievement level. The scale used to measure a student’s progress is called the RIT scale (Rash unit). The RIT scale is an equal-interval scale (like feet and inches on a yardstick). The student’s academic growth can be charted from year to year. North Sevier High School’s three-year NWEA baseline data has been collected. Table 2 provides 2012-13 RIT values by grade level. It should be noted that Winter RIT values were gathered after the introduction of iPads.

2012-2013 NWEA RIT Values by Grade Level

Language Arts

	Fall	Winter	Spring
9th	223	222	223
10th	226	227	228
11th	228	228	231
12th	207	206	205

Reading

9th	220	221	220
10th	226	227	225
11th	231	230	230
12th	198	203	

Math

9th	234	235	236
10th	237	239	246
11th	237	235	250
12th	220	219	232

Science

9th	217	219	225
10th	220	220	225
11th	216	220	224
12th	213	215	217

Blue indicates growth each testing cycle

Utah Criterion Referenced Test Scores 2012-2013

		2012		2013	
		# of Students Proficient	% of Students Proficient	# of Students Proficient	% of Students Proficient
North Sevier High School	Language Arts				
	9th Grade	82	88%	76	75%
	10th Grade	66	97%	80	93%
	Mathematics				
	Algebra I	41	63%	76	67%
	Geometry	85	52%	N/A	N/A
	Science				
	Earth Systems Science	25	76%	71	73%
	Biology	67	87%	75	85%
	Chemistry	17	59%	15	27%
Physics	38	84%	N/A	N/A	

Year-One Summary

Use of the iPad. Instructional use of the iPad varied among the test sites. A majority of the GVES teachers incorporated mobile technology into their daily instruction, using their device to display information for students. This allowed the teachers to move about the classroom and interact with students continually. GVES teachers used the device as a classroom management tool. Several teachers have developed Utah Education Association web pages for their students to access appropriate informational sites. At Dixon Middle School half of the teachers use mobile technology in their instruction. Those using the devices incorporate the tool into instructional practice to enhance student learning. NSHS teachers are similar, in use of the devices, to Dixon Middle School.

Students at GVES are adept at using the iTV, iPad and various apps. Students used the device to present Keynote presentations, write reports and essays, research information for classroom assignments, uploading assignments and practice content skills. Students at Dixon Middle School used their iPads for journaling, sharing Keynote presentations, and uploading assignments in iAssignments. Students at NSHS mainly use the device to upload homework assignments in iAssignments.



Teachers at Dixon who do not use the iPad consistently continue this practice by choice. Often the teachers are not comfortable with the technology and integrating technology into their instructional practice. One teacher did not use the iPad due to hardware failure (the room could not be wired). This teacher would like to incorporate the use of mobile technology in their instruction if and when the classroom hardware can be remediated. NSHS teachers who do not consistently use the iPad also had concerns with how to incorporate technology into their content instructional practice.

What degree/in what ways does the use of the iPad make a difference. The use of the mobile technology was limited to less than seven months this academic year. Archival data was collected from each site to determine benchmark measures for student achievement in the coming years. However, the anecdotal data indicates that if teachers incorporate mobile technology appropriately and in best practice there is a perceived difference in student work and attitudes toward school assignments.



Teachers who integrate the use of mobile technology into their instructional practice indicate it improves instruction and classroom management.



Appendix A

Three Year Evaluation Plan

Study Overview

The study will utilize 2 overarching research questions considering three populations.

Research Questions:

Q1: Do participants use the iPad? Why or why not?

Q2: To what degree/in what ways does the use of the iPad make a difference in:

- a) learning achievement
- b) instruction
- c) affective characteristics (motivation, efficacy, attitudes)?

Populations:

Students
Teachers
Principals

Study Design

Part A:

Purpose: Answer Q1.

Populations: Teachers, and principals in the 3 participating schools.

Instruments/Data: Survey, observation (school visit), and/or interviews/focus groups.

Design: Multiple measures from all participants or a sample of the participants.

Part B:

Purpose: Answer Q2.

Populations: Teachers and students using the iPad and their principal.

General Design: Obtain data from/for the entire populations or a sample.

Research Questions:	Dependent Variables	Independent/Mitigating Variables
2a) Learning Achievement	Student learning	Use of iPad in instruction, affective characteristics, background with technology, demographics (individuals and school)
2b) Instruction	Instruction	Use of iPad, affective characteristics, background with technology, demographics (individuals and school), teacher educational background
2c) Affective Characteristics	Motivation, efficacy, attitude	Use of iPad in instruction, demographics (individuals and school), learning achievement

Research Questions:	Populations	Instruments/Data	Design
2a) Learning Achievement	Students	End of Year Test Scores, Unit Tests, Reading Inventory, Math Assessment	Pre- and Post-test of non-equivalent groups (treatment and control)
2b) Instruction	Students and Teachers	Surveys, observations, interviews/focus groups, Tracking of how iPads are used (if feasible and appropriate)	Multiple measures of treatment group
2c) Affective Characteristics	Students, Teachers, and Principals	Survey	Pre- and Post-test of treatment group and perhaps a control group

iPad apps by Content

Science

Body Organs
Inside Nature's Giants
Frog Dissect
NASA
BrainPop
Science 360
The Elements
Meet the Insects
Google Earth
Discovery News
EyeDecide

Journal

iDiary
Day One

Games

The Oregon Trail
Flow

Math

Math Bingo
Math Puppy
Math Ninja
Rocket Math

Reading/Literacy

PBS Kids
Brain Quest
Goofy Mad Libs
My Spelling Test
Hooked on Words
Spelling Bug
Chicktory
Word Search

Geography/History

Stack the States
Tiny Countries
Timeline Battle Castles
Civil War Interactive
Ansel and Clair: Paul Revere's Ride

Books

Morris Lessmore
Gutenberg
Reading Skills 3A
Bookster
Tales2Go
Subtext

Music

MiniPiano
Garage Band
Learn Guitar

Other

Doodlecast
Pages
iMovie
Penultimate

Bases for Digital Resource Selection

Bloom's Taxonomy for iPads

Creating	 Audioboo	 iMovie	 ComicBook!	 ReelDirector	 SonicPics	 Animoto	 Puppet Pals	 Toontastic	 DoInk
Evaluating	 HootSuite	 Skype	 Mobile RSS	 Science 360	 Zite	 FlipBoard	 Instapaper	 Goodreads	 Wunderlist
Analyzing	 iThoughts HD	 Lino	 Popplet	 Today's Documents	 Diigo	 Explain Everything	 3D Cell Simulation	 GoSky Watch	 GoDocs
Applying	 ShowMe	 Poetry Creator	 Keynote	 Visualize	 Posterous	 ZigZag Board	 Presentation Link	 Xperica	 GearHD
Understanding	 ScreenChomp	 Motion Math	 123 Charts	 Idea Sketch	 Corkulous	 Blogsy	 Good Reader	 Touch Draw	 Pages
Remembering	 iBook	 Notes shelf	 Stack the Countries	 Evernote Peek	 NxtApp 4Kids	 Ansel & Clair's Adventure	 Word Seek HD	 eClicker	 Globe

Silvia Rosenthal Tolisano-GloballyConnectedLearning.com - Adapted from Dave Mileham

Gardner's Multiple Intelligences for iPads

Intrapersonal	 iBook	 Mobile RSS	 Faces iMake	 Word Collage	 WordPress	 Idea Mapper	 Popplet	 Day One	 NotesShelf
Interpersonal	 HootSuite	 Skype	 VoiceThread	 Draw Something	 Lino	 JabberPad	 WhiteBoard Pro	 Facebook	 Google Plus
Visual Spatial	 Motion Math	 Corkulous	 Stack the Countries	 PicCollage	 iThoughts HD	 Google Earth	 Pinterest	 Sketch	 Phoster
Musical	 Animoto	 Singing Fingers	 MadPad	 Music for Little Mozarts	 Garageband	 Thumb Jam	 Notability	 Sound Notes	 Poetry Creator
Linguistics	 ScreenChomp	 Audioboo	 iMovie	 Explain Everything	 Book Creator	 Pages	 Comic Story	 Little Story Maker	 Speech Journal
Logical Mathematical	 Diigo	 Math Doodles	 Geometry Pad	 TinkerBox	 CargoBot	 TanZen	 Cut the Rope	 Geared	 Numbers

Silvia Rosenthal Tolisano- GloballyConnectedLearning.com

The Digital Learning Farm: Apps for iPads



Shiva Rosemond Tolson - GloballyConnectedLearning.com - based on Alan November's Work The Digital Learning Farm

iSchool Reviewed Online Content

Websites	Description	Grade
http://moma.org/explore/mobile/index	MoMA.org on the Go is the mobile version of the New York Museum of Modern Art	All Grades
http://www.redheads.org/activities/odd_machine/index.htm	Grades 2-6, students learn about forces and simple machines	All Grades
http://www.kidtastic.com/city/city.html	Kidtastic is a virtual world of interactive learning for kids	All Grades
http://www.startinggatepress.com/bytheway.htm	Free pictures of everyday things from Starting Gate Press. Get students thinking, talking, and writing about observations using inferences.	All Grades
http://www.rtpi.org/electronic-naturalist	K-8 interactive, science lesson every two weeks.	All Grades
http://www.funbrain.com/teachers/index.html	Free online games for students to practice curriculum skills.	All Grades
http://www.eo.ucar.edu/kids/	Kids' Crossing Web site for science learning	All Grades
http://www.50waystohelp.com/	50 Ways to Help the Planet uses recycling, energy, and conservation to let students pass on their knowledge using the Share This Link.	All Grades
http://www.knowitall.org/nasa/index.html	NASA Online, math, science, and technology videos	All Grades
http://www.learningleaders.org/	Free reading resource for parents. Includes free, printable, age-appropriate reading games and activities for use at home or school.	All Grades
http://wechoosethemoon.org/	We Choose The Moon - Apollo 11 mission to the moon	All Grades
http://www.mathplayground.com/wp_videos.html	Solve It! math Word Problems is a video collection of multistep word problems for active minds	All Grades
http://www.eo.ucar.edu/educators/KC_guide_intro.html	Kids' Crossing in the Classroom-science	All Grades
http://www.exploratorium.edu/	Online museum of science, art, and human perception.	All Grades
http://reading.ecb.org/index.html	INTO THE BOOK - focuses on reading comprehension through interactive strategies	All Grades
www.readwritethink.org	Free resources for teachers	All Grades

Websites	Description	Grade
http://www.eduweb.com/pintura/	A. Pintura Art Adventure	All Grades
http://kidoz.net/plus/buzz.html	Kido'z is a safe, easy, fun Internet browser for kids.	All Grades
http://discoveryeducation.com/teachers/free-lesson-plans/virtual-electron-microscope.cfm	Virtual Electron Microscope powered by Discovery education	All Grades
Khan Academy	With a library of over 2,400 videos covering everything from arithmetic to physics, finance, and history and 125 practice exercises, we're on a mission to help you learn whatever you want, whenever you want, at your own pace.	All Grades
http://pbskids.org/whiteboard/	Free interactive whiteboard games for Language Arts, Math, Social Studies, and The Arts.	All Grades
http://www.lot.gov/rr/scitech/myseries/	Everyday Mysteries are fun science facts from the Library of Congress	All Grades
http://twitter4teachers.pbworks.com/w/page/22554534/FrontPage	Twitter4Teachers wiki, created to help educators connect with other educators on Twitter	All Grades
http://mathcounts.org	National math enrichment aligned with the Common Core State Standards to support the classroom math curriculum	All Grades
http://reading.ecb.org/teacher/	The TEACHER AREA for "INTO THE BOOK"	All Grades
Ted Talks	Great website full of new ideas and inspiration. Great for warm up activities.	All Grades
http://news.scholastic.com/math/	Numbers in the News! Is a weekly news story involving numbers with a question to solve.	All Grades
http://learning.blogs.nytimes.com/	The New York Times Learning Network is a free online resource for current events and interdisciplinary curriculum. Daily News Quizzes, Word of the Day, On This Day in History, Front Page Podcast, and lesson plans across the curriculum	All Grades

Websites	Description	Grade
http://www.carrotsticks.com	Grades 1-5, designed by the Stanford	All Grades
	School of Education, math challenge where students compete with their peers around the world	
http://www.isaveatree.com/publicschoolsusa/	Virtual Library 2.0 software and iBook with 15 interactive books and Marc records that can be downloaded and installed on a server so all students and teachers can access the iBook titles.	All Grades
http://nrich.maths.org/public/	Free mathematics enrichment for K-12 graders	All Grades
http://www.magpo.com/kidspoetry/play_online.cfm	Magnetic Poetry Kids' Kits Online	All Grades
www.schoolimprovement.com	Professional development for teachers	All Grades
http://www.PBS.org/wgbh/nova/bridge	Build a Bridge, students investigate the role of civil engineers based on different scenarios	All Grades
http://quest.bluezones.com/education/blue-zones-challenge/	Health/Fitness online challenge	All Grades
http://globe.gov/	Global Learning and Observations to Benefit the Environment, inquiry-based investigations for science education	All Grades
http://www.inventionatplay.org/playhouse_tinker.html	Lemelson Center for the Study of Invention and Innovation-critical thinking and problem-solving.	All Grades
http://water.epa.gov/learn/kids/drinkingwater/wsb_index.cfm	324 activities for K-12 environmental education about water resources and the water cycle.	All Grades
http://www.freerice.com/	FreeRice, Harvard University and United Nations World Food Program-students take online quizzes and a rice meter keeps track of their answers. For every correct answer, freeRice will donate 20 grains of rice to the UN World Food Program.it takes about 20,000 grains of rice to feed one person for one day.	All Grades
http://www.learner.org/interactives/periodic/index.html	Periodic Table Interactives	All Grades
http://pbskids.org/webonauts	PBS KIDS GO! Webonauts learn about citizenship, identity, privacy, and web safety	2nd Grade

Websites	Description	Grade
http://www.arcademicskillbuilders.com/games/grand_prix	Grand Prix Multiplication	3rd Grade
http://www.historyglobe.com/Jamestown/	History- Jamestown Online Adventure	6th Grade
http://www.discoverengineering.org/	Discover Engineering	6th Grade
http://www.stemcollaborative.org	Middle school interactive learning adventures from STEM Collaborative Project	6th Grade
http://dsc.discovery.com		6th Grade
http://www.EPA.gov/sow/education/mad.htm	Free curriculum resources about "greenscaping", eCycling, and service learning. Plan an Earth Day event!	6th Grade
www.nbclearn.com/portal/site/learn	Middle school website	7th Grade
http://www.media-awareness.ca/English/games/allies_allies/index.cfm	Allies and Aliens: A Mission in Critical Thinking, helps students recognize bias, prejudice, and hate propaganda on the Internet and other media.	7th Grade
www.tvschoolhouse.com	Middle school resource	7th Grade
http://www.brightstorm.com/math	2,000 free homework videos for math (Algebra I, Geometry, Trig, Precalculus, and Calculus)	8th Grade
http://www.tryengineering.org/play.php#	Try Engineering to create a virtual design Solar Car, design and test a Bionic Arm	8th Grade
http://www.knowitall.org/nasa/simulations/math.html	NASA Connect Math, short videos demonstrating algebra and geometry	8th Grade
www.space.com	Middle school science resource	8th Grade
http://knotebooks.com	High school physics lessons, sample lessons from MIT OpenCourseware or Stony Brook University	8th Grade
http://puzzling.caret.cam.ac.uk/game.php?game=roller	Roller Coaster Design	8th Grade
http://www.urbanplanetmobile.com/splash.html	North Carolina businessman and lyric tenor in NC Opera offers recorded vocabulary lessons available via cell phone.SAT/GRE Remix has 300 words that commonly trip up the SAT test taker	8th Grade

Websites	Description	Grade
http://www.engineeringsights.org	A Sightseer's Guide to Engineering	8th Grade
http://www.powerupthegame.com/	PowerUp, created for high school students by IBM, TyrScience, The New York Hall of Science, National Renewable Energy Laboratory, Connecticut Innovation Academy, Center for 21st Century Skills	8th Grade
http://www.brightstorm.com/science	2,000 videos on Biology, Chemistry, and Physics	8th Grade
http://www.online-stopwatch.com/	Never be without a stopwatch or timer again! Online Stopwatch can be used full screen online or downloaded to your Mac.	Education
http://www.cotf.edu/eye/	Explore the environment, hurricanes, Yellowstone Fires, Mountain Gorillas, Water Quality, and Florida Everglades.	Education
http://www.tikatok.com/	A Barnes & Noble company, teachers can register for free teacher tools to help kick-start a creative writing project. It is a community for children to write, illustrate, and publish a real book.	Education
http://www.mathopenref.com/	Perfect for the interactive whiteboard, Math Open Reference is a Free interactive resource	Education
http://www.wordle.net/	Wordle is a creativity tool for generating "word clouds" from any provided text.	Education
http://www.loc.gov/poetry/180/	Poetry 180 for American High Schools, presents a poem a day for 180 days. Also provides Web casts and related resources.	Education
http://www.lumosity.com/	Scientific brain games to improve memory and attention.	Education
http://www.ncrtec.org/capacity/profile/profess.htm	Teacher tool used to engage learning	Education
http://www.quizinator.com/	Quizinator is a free e-learning tool for teachers so that they can create, store, and print worksheets, study sheets, exams, and quizzes online.	Education
http://www.mathopenref.com/co	Print Blank Graph Paper is a tool	Education

Websites	Description	Grade
ordblank.html	from the Math Open References Web site.	
http://www.lauracandler.com/	Graphic organizers, activity sheets, and teacher tools. Register for the newsletter and you will have access to template files, which you can modify.	Education
http://www.curriculumbits.com/pod_images/details/misc/nv1.swf	Non Verbal Reasoning - Analogies	Education
http://www.sliderocket.com/	Create, manage, and deliver online presentations. Organize a presentation library and share it on the Web.	Education
http://science.vocabulary.com	Specialized science terms can be made into links that can be looked up in a dictionary or reference site.	Education
http://www.planbookedu.com/	PlanbookEdu, make lesson plans available anywhere, anytime. Basic service is free and allows one plan book per year.	Standards
http://www.COSN.org	Empowering 21st Century Learning K-12 Technology	Technology
http://www.hitl.washington.edu/artoolkit/	Augmented Reality Technology, overlays digital content on top of real-world surroundings to enhance classroom lessons.	Technology
http://docs.google.com/	Google Docs is a free tool that allows group editing in real time, then the document is automatically saved and stored.	Technology
http://www.teachingdegree.org/2009/06/30/50-awesome-ways-to-use-skype-in-the-classroom/	50 Awesome Ways to Use Skype in the Classroom	Technology
http://www.jingproject.com/	JING is free software that let's users snap a photo or record video and share over the Web or Instant Messaging.	Technology
http://www.the-tech.org/exhibits/online/robotics/	Tech Museum of Innovation, the history and workings of robots and robotic cars	Technology
http://www.tagxedo.com/	Turn famous speeches, news articles, slogans, and themes into a visual tag cloud.	Technology
http://www.architectstudio3d.org/AS3d/home.html	Design a House with Frank Lloyd Wright	Technology

Websites	Description	Grade
http://edu.glogster.com/	Glogster EDU is free and allows 50 student management. A multi sensory collaborative learning platform that allows teachers and students to express their creativity, knowledge, ideas, and skills in a unique way.	Technology
http://www.poll daddy.com/	Add a student poll to your class Web page, survey features Unlimited FREE polls, Polldaddy skins to customize your pictures and video to polls.	Technology
http://www.pptpalooza.net/	PowerPoint Palooza! 220 educational slides for geography, social studies, and history. Download the files before using them.	Technology
http://www.oovoo.com/	ooVoo allows two-way video chat	Technology
http://www.edmodo.com/	Edmodo is a social learning network designed for K-12 educational use. Teachers can create free communication for teachers, students, and administrators on a secure social network for the classroom. Educators can store and share all forms of digital content- blogs, links, pictures, video, documents, and presentations that are accessible online or Android and iPhone.	Technology
http://wvde.state.wv.us/instructional_guides/	Teach 21 Instructional Guides- project-based assessments with rubrics (K-12)	Technology
http://www.watchknow.org/	WatchKnow has free educational videos for grades k-12 classrooms. Register to upload the videos to your computer. 50,000 educational videos	Technology
http://www.bubbl.us/	Create mind maps and share them online	Technology
http://edu.glogster.com/download/glogster-edu-educator-resource-library.pdf	Educator Resource Library available to download, as a PDF.	Technology

Appendix E

Gunnison Valley Elementary School Teacher Survey

Percent	Statement of Responses
100%	I know at least 3 things about using an iPad I didn't know before this year.
10%	My students use their iPads at least 3 times a week.
85%	My students use their iPads basically every day.
65%	My students use their iPads in place of worksheets.
90%	I have shared something about using iPads with another teacher.
15%	I know how to mirror my iPad/laptop.
85%	I regularly mirror my iPad/laptop with my students
50%	I have helped my students use their iPads to create a project.
85%	I have read a book or article about using iPads.
95%	I have talked with my grade level PLC about using the iPads.
100%	I can name 3 really good math apps.
85%	I can name 3 really good reading apps.
80%	I have used my iPad in an innovative way.
75%	I have plans for a really awesome way to use iPads to improve instruction.
30%	I have tried to use iAssignment.
25%	I am pretty successful at using iAssignment.