Raggio Research Center for STEM Education at the University of Nevada

2010 State Technology Needs Assessment

Report to the Nevada Commission on Educational Technology & the Nevada Department of Education

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Table of Contents

Tables 3

Figures 3

Executive Summary 5

Purpose 7

Needs Assessment Design 7

Teacher Survey 8

Technology Coordinators' Survey 8

Interviews 8

Parent Survey 9

Other Data Sources 9

Results 9

Organization 9

District Categories 10

Technology Plans 10

District Technology Plans 10

State Technology Plan 11

Technology Plan Impact 12

Funding & Guidance 12

Other States 14

Computer-Based Testing in Nevada 14

Kansas 15

Florida 16

Virginia 17

Nevada 18

Educational Technologies Improving Instructional Development and Delivery 20

Expanded Use of Laptop Computers 20

Internet Use 22

General Observations 23

Current Capacity of Nevada Schools 23

Survey Results 23

Technology Coordinator Surveys 24

Technology Coordinator Survey Results 24

Teacher Surveys 30
Nevada Classrooms 30
Schools 33
Technical Support: 36
Frequency of Technology use: 39
Preparation and Professional Development 42
Technology Coordinator Responses 42
Preparation 43
Professional Development 44
Parent Surveys 51
Appendices 54
Appendix A- Letters to Superintendents, IT Coordinators, Principals, Teachers, Parents 55
Appendix B- Technology Coordinator Survey 63
Appendix C– Teacher Survey 66
Appendix D- Parent Survey 73
Appendix E – IT Coordinators' Interview Protocol 74

Tables

Table 1 District Size Definitions 10
Table 2 Number of Respondents by District and Category 24
Table 3 Responses to "Describe a common low-end, middle-end, and high-end classroom that a visitor might see in your district." 25
Table 4 Comparison of STNA 2008 and 2010 Reports on Technology Available via Check Out System 36
Table 5 Teacher Preparation in Comparison to 2008 43
Table 6 Professional Development Opportunities Compared to 2008 44

Figures

Figure 1 Age of Teacher Computers 31
Figure 2 Responses to "Which of the following technology equipment do you have in your classroom all the time statewide?" 31
Figure 3 Responses to "Which of the following do you have in your classroom all of the time as responded by large, medium and small districts?" 32
Figure 4 Number of Students Per Computer during a Typical Class 32
Figure 5 Classroom Internet Speed is Such that Online Videos begin playing 33
Figure 6 Comparison of Washoe County SD and Clark County SD: Classroom Internet Speed is such that Online Videos Begin Playing 33

Figure 7 Responses to “Which of the following do you have in your classroom all of the time?” 34
Figure 8 Responses to "Which of the following do you have in your classroom all of the time?" 34
Figure 9 Comparison by School Districts: Which of the following do you have in your classroom all of the time. 35
Figure 10 Responses to "Teacher can Sign up/Check-out Technology for a Finite Time in Classroom." ... 35
Figure 11 Comparison by School Districts: Responses to “What technology equipment can you arrange to have in your classroom for a finite time.” 36
Figure 12 Responses to "Time Required to Get Technical Assistance is Minimal." 37
Figure 13 Responses to "There is an Adequate System for Technical Support." 37
Figure 14 Comparison between Clark County and All Other Districts: "Time required to Get Technical Assistance is Minimal." 38
Figure 15 Comparison of Clark County teachers and teachers from all other districts of the teacher ratings to "What is your level of agreement with the current system for technical support." 38
Figure 16 Responses to “Of the most recent 60 minutes of Class Time, Did Students use the Computer for Instructional Purposes?” 41
Figure 17 Responses to "During the most recent 60 minutes of classroom time, the number of Students that used computers." 41
Figure 18 Responses to "How many days since the beginning of school has a typical student used a computer for instructional purposes?" 42
Figure 19 Responses to "How would you rate the quality of the technology related professional development opportunities offered by the following entities?" 45
Figure 20 Responses to “Quality of Professional Development-District" 45
Figure 21 Responses to “Quality of Professional Development-Higher Education Institutions" 46
Figure 22 "Responses to “Quality of Professional Development-RPDP" 46
Figure 23 Responses to “Quality of Professional Development-School Site" 47
Figure 24 Eureka County School District responses to "Quality of the technology related professional development opportunities offered." 48
Figure 25 Lyon County School District responses to "Quality of the technology related professional development opportunities offered." 49
Figure 26 Carson City School District responses to “Quality of the technology related professional development opportunities offered.” 50
Figure 27 Lyon County School District responses to “Quality of the technology related professional development opportunities offered.” 51

Executive Summary

Nevada's schools have technology levels that are not insignificant and those levels are increasing. Unfortunately, so is the age of the computers in the schools. While 99.6% of classrooms have at least one computer, 74% of them are between four and ten-plus years old. In spite of gains since the last needs assessment (2008), Nevada's classrooms remain unable to leverage sufficient technology to focus on student-centered instruction that utilizes technology. Only 20% of responding teachers said that their classrooms have more than three computers for students to use. However, 54% have a projection device in their classroom and 42% responded that they have laptop carts available for their classrooms, up from 31% in the 2008 survey.

Respondents generally still agree that they are prepared to use technology and that there is an adequate system for technical support. Although most of the teachers were neutral when responding to a question about professional development, many rated those programs moderately low and cited lack of time available as the biggest obstacle to training. Technology Coordinators feel that many teachers still view technology as an "add-on" rather than a tool that enhances learning. They also still acknowledge many challenges to implementing professional development, including funding, substitutes for teachers, and district support.

Parents are generally very supportive of their children's use of technology especially as it might translate into 21st Century job skills, and they feel that classroom technology is critical to their child's success later in life. They are, however, somewhat unclear as to what technologies their children are learning and why and would like to know more. Many respondents commented that they wanted their children to learn to think critically about Web content and understand proper use of information found on the Internet. Most parents said that there is inadequate funding for technology and that current classroom technology is out of date and substandard. As one Clark County parent said: "We need so much more access. We are raising tech savvy kids and we are putting them in old fashioned classrooms. Our world is changing and public education needs to keep up with the times."

Planning continues to be seen as critically important and Technology Coordinators say they look to the Nevada Department of Education (NDE) to lead in technology planning, complimenting the staff for the process and outcomes of revising the State Technology Plan last year. Many also acknowledged the help they have received from the NDE staff in their district-level planning processes. Most districts try to

model their plans after the state's newly revised plan but say that funding will keep many of their plans from being realized.

Changing Federal policy regarding online testing means that Nevada will have to devote significant resources in the next two biennia and speed up its online testing preparation in order to make the 2013-2014 deadline for fully operational field testing, and the 2014-2015 mandatory start date. Failure to adequately plan and prepare for the impending implementation of online testing will result in significantly increased costs for Nevada. Although the current paper-and-pencil testing will be allowed until the 2016-2017 school year, there will then be a per-pupil fee assessed as a way to penalize those states not using online testing. This is in addition to the costs of the on-line testing, meaning that Nevada would pay for every student to be tested online and then pay again for every student to take a paper-and-pencil test if the state's online testing system is not functional in all counties. The costs to Nevada for that could be over $20 million. Planning for implementation and allocating appropriate funding in the upcoming 2011 legislative session are crucial steps in this effort. The time is ripe to address this issue and to plan for the change, thus ensuring a minimally disruptive and maximally efficient implementation.

Nevada's classrooms remain in great need of support at all levels for consistent and increased funding, significant high-quality and prolonged professional development for teachers, and technologies that actively engage students in learning and allow for computer-based testing. Many teachers commented about the age of the equipment and the infrastructure, saying that they were being asked to prepare students for 21st Century jobs with 20th Century equipment. As one teacher put it "I don't even have enough electrical outlets in my classroom, much less up-to-date technology!" and another said "I am frustrated! I have so many great ideas for integrating technology and can't pursue these."

Purpose

The purpose of this document is to present the findings of the 2010 State Technology Needs Assessment (STNA) for Nevada schools and districts. The needs assessment was guided by the requirements set forth in SB184 (sections 19.1d, 19.6a-b, and 27.1-27.3) and by the first needs assessment conducted in 2008. The following research questions were developed in 2008 to address these requirements and remain the guiding questions in 2010.

1. What is the current status of the state and district educational technology plans?

2. In what ways can educational technologies, such as computer-based assessments, laptop computers and Web-based tools, improve instructional development, delivery, and assessment in Nevada?

3. What is the current capacity of schools in Nevada to positively impact the achievement of students through the use of educational technologies?

4. How prepared are Nevada teachers to integrate technology into the classroom?

Needs Assessment Design

It should be noted at the outset that funding for this year's STNA is 50% of what it was in 2008 and the timeline was compressed by several weeks, resulting in fewer resources being available to conduct the study and prepare the report. The result is a report that lacks some of the depth of the previous report but that nonetheless contains the full breadth of data collected. As with every public enterprise in the state, we do with less. The 2010 surveys were composed of the same questions as the 2008 surveys for consistency of data and so that comparisons between the years could be made. The protocols were submitted to the University of Nevada, Reno's Institutional Review Board (IRB) in the Office of Human Research Protection (OHRP) and the project was deemed exempt from IRB oversight. All school district superintendents were e-mailed and faxed an introductory letter so they were aware of the process and of what information would be requested (Appendix A). A letter was also sent to school principals explaining the process and the surveys and asking for their assistance with the parent surveys (Appendix A). Technology Coordinators were sent copies of these introductory letters and subsequent survey links (Appendix A) and were also contacted by phone. This step was designed to ensure that e-mails that were being sent to teachers would actually be delivered past the districts' firewalls. Four Technology

Coordinators were also personally interviewed. The surveys were then sent to the teachers (Appendix C) and responses were collected over two and one half weeks.

Teacher Survey

The 39 items on the teacher survey used for the 2010 needs assessment were the same as those answered by the teachers in the 2008 survey (Appendix C), and districts were separated by student population size as in the previous survey. In districts with 2,000 or fewer students, all teachers were sent the letter inviting them to take the survey. In districts of 2,000-20,000 students, 300 teachers were selected from elementary, middle, and high schools for a total of 900 teachers. In the large districts of 20,000 or more students, 20% of the teacher workforce was invited to participate in the survey by random selection. Teachers selected were given a district-specific link to Survey Monkey (http://www.surveymonkey.com) where they responded to the survey questions. The data were collected anonymously and aggregated by district. Of the 3,272 teachers invited to respond to the surveys, 1,912 completed the surveys, a response rate of 58.4%. Questions designed to determine technology capacity of classrooms, schools, and districts included items such as: *Do you have an LCD projector in your classroom?* and *Do you have computers that students can use?* Questions that were intended to gauge preparation and professional development included: *How would you rate the quality of the professional development opportunities provided by your district?* and *How well prepared are you to integrate technology into the classroom?*

Technology Coordinators' Survey

All district Technology Coordinators were asked to respond to a 27-item, Web-based questionnaire. Most of the questions were open-ended and focused on technology planning, classroom capacity, school resources, teacher preparation, and professional development. Of the 17 possible respondents, 15 completed the survey. The items in this survey can be found in Appendix B.

Interviews

A very limited number of interviews were conducted this year due to budget constraints. The interviews of district Technology Coordinators occurred in Carson City in conjunction with the meeting of the Commission on Educational Technology (CET). The interview questions are listed in Appendix E.

Interviews with a large group of personnel from the NDE who are responsible for testing and with representatives from Measured Progress, the state's testing vendor, were done via teleconference.

Parent Survey

Due to the difficulty in obtaining contact information for and survey information from parents, the school site principals were asked to provide assistance (Appendix A). It was suggested that they send out the survey link via school/classroom letters, school-wide activities where a shared computer or computer lab could be made available, PTA meetings, or school club and athletic event rosters. In all, 264 parents from seven districts responded to the survey. Initially, Clark County parents were not invited to participate because the district was in the process of conducting a parent survey on the budget crisis and it was felt that asking for a response to a second survey would damage the response rate to the first survey. However, the parent survey was later opened for 10 days and the link to the survey provided via Clark County's online system. The parent survey questions can be found in Appendix D.

Other Data Sources

Data from the newly revised state technology plan and district technology plans are included in this report.

Results

Organization

The results reported herein are organized by the research questions. First is a snapshot of the technology plans of both the state and the districts and some thoughts on technology planning. The next section addresses the findings regarding specific initiatives. The third section addresses the questions regarding teacher preparation and professional development in technology integration.

District Categories

Assessing and describing the technology needs of a state as large and diverse as Nevada is challenging. The diverse nature of our state is evidenced by its geography, economics, and the great variations that exist in the state's districts and schools. The unique needs of each district, school, and classroom are products of these variations. As in the 2008 report, this report will refer to large, medium, and small school districts using the definitions described in Table 1.

Table 1 District Size Definitions

Size	Student Enrollment	Districts
Small	< 2,000	Esmeralda, Eureka Lander, Lincoln Mineral, Pershing Storey, White Pine
Medium	2,000-20,000	Carson City, Churchill Douglas, Elko Humboldt, Lyon Nye
Large	>20,000	Washoe Clark

Technology Plans

The primary sources of information for this section are the interviews with Technology Coordinators, the survey of Technology Coordinators, and a review of the state and district educational technology plans. Responses to this year's surveys and interviews differ little from those in 2008.

District Technology Plans

State and Federal guidelines require each district to prepare and submit a Technology Plan in order to receive funds such as eRate and State Technology Funds. After interviewing four district Technology Coordinators, it was discovered that discrepancies exist between districts in regard to how often district technology plans are updated. For example, although all districts comply with State guidelines, Washoe and Carson City School District's technology plans were updated last year, while Storey County has not made any changes to its technology plan in three years. District Technology Coordinators noted that technology goals have been established within the technology plans adopted by their districts. Many

coordinators also stated that data are collected from teachers and students in order to assess whether these technology goals are being met throughout their district. A few of the goals discussed by Technology Coordinators during the interview process included infrastructure modifications and hardware and software updates.

When asked how closely the technology plans in their district mirror the state technology plans, a large majority of Technology Coordinators stated the technology plans adopted within their districts are aligned with those of the state. Many of the Technology Coordinators surveyed described the use of a technology committee as the main source of district technology planning. The technology committees described typically consist of representatives from each school in the district. Technology committees specific to each school were also mentioned by a few coordinators, noting that these committees reference both the state technology plans and the district plans created by the district technology planning committee when forming the technology plans for their school.

In regard to technology plan integration, the Technology Coordinators interviewed stated that integration plays a large role in technology implementation within their district. For example, Carson City School District currently provides professional development opportunities for its educators in order to increase successful technology plan integration in the classroom. One of the coordinators interviewed discussed the establishment of a curriculum software committee within his district, in order to provide support to teachers within his district.

State Technology Plan

The State Educational Technology Plan was revised following the 2008 needs assessment. The NDE went through a lengthy process to revise the plan, calling on experts from both outside and inside the state including the International Society for Technology in Education (ISTE), the Nevada Commission on Educational Technology (CET), the Nevada System of Higher Education (NSHE), rural and urban Nevada businesses, the Nevada Parent Teacher Association, and the Corporation for Public Broadcasting. ISTE provided facilitators to help guide the process. The result is a comprehensive, up-to-date plan to guide Nevada through the next five years, aligned with the ISTE's National Educational Technology Standards for Administrators (NETS-A), for Students (NETS-S), and for Teachers (NETS-T). With this task accomplished, Nevada's Educational Technology Plan can provide guidance to the districts as they revise, expand, and update their own plans, and can provide a common foundation upon which intra-

state collaborations can be built. The 16-district Pathway to Nevada's Future project, funded through the American Recovery and Reinvestment Act (ARRA), is an excellent example of collaborations that can be fostered when there are common goals and standards.

Technology Plan Impact

A problem mentioned by many coordinators involved the assessment of achievement impact within their district. Many coordinators noted that achievement is hard to measure, due to the fact that multiple programs are implemented within their district, making it difficult to decipher whether measured success can be attributed to technology integration. One coordinator stated that the data collected on district-wide achievement is sent to a statistician to be analyzed; therefore the impact of the district technology plan on achievement is unknown at this time.

Technology Coordinators also stated that professional development is needed in order to ensure that both state and district technology plans are implemented in every classroom. One coordinator believes that providing technology instruction across the state will foster technology literacy and efficacy among Nevada educators, but also notes the difficulties faced by the state and the districts when it comes to providing professional development opportunities.

Finally, one coordinator described the struggle faced by teachers to keep up with the continuing changes in technology, while still being asked to use the skills and tools available to implement the technology plans created by their district. Problems with technology access, maintenance, and updates will be discussed later in this document, but it is important to note that without the proper support, the level of impact of the district technology plans within schools across the district will be difficult to measure.

Funding & Guidance

In response to the surveys distributed, Technology Coordinators indicated that a lack of funding was the biggest challenge faced by many of the districts across Nevada. A few districts described plans to apply for grant funding in order to purchase updated software and hardware for their students, as well as funding for repairs on technology equipment that is currently in use and bandwidth upgrades for schools. A large majority of the Technology Coordinators surveyed indicated that while state technology

guidelines are being used as a reference for most districts, it is difficult to implement many of these standards without adequate funding.

When asked about the major sources of funding for technology in each district, Technology Coordinators repeatedly stated that funding for such endeavors is increasingly inconsistent. Many districts rely on grant and bond funding, which is very limited. In addition, Technology Coordinators referenced the Enhancing Education Through Technology (EETT) funding (Federal pass-through) as a source for financial support for district technology use, but since a portion of this source is also formula-funded, the monetary amounts provided to each district are both limited and unreliable. The EETT funds that are awarded as competitive grants are small and it is difficult for small districts to compete. Based on the limited amount of financial support each district receives, it was noted by one Technology Coordinator that the task required of most districts is to find a balance between the students' technology needs and what funding can provide. Many of the coordinators surveyed expressed the need for adequate funding not only to purchase updated technology, but also to sustain technology support and professional development in technology integration.

For guidance, many Technology Coordinators look to Nevada's State Technology Standards. Many districts also rely on technology committees consisting of representatives from each school in the district to discuss technology planning for their district. The consistency of technology committees meeting times differ from district to district (e.g., one district has their technology committee meet twice a year, while another district has their technology committee meet once every four years), but each committee is typically responsible for the technology planning for the district and informing teachers within the district of staff technology development opportunities.

A review of the 2008 report shows that little has changed and the same comments and concerns expressed this year were also expressed then. The Technology and Innovative Programs office remains understaffed in comparison to other states' offices. As with the 2008 report, a full review of the staffing levels of educational technology offices in other state departments of education is beyond the scope of this project, but a review similar to the one conducted in 2008 reveals that the staffing levels are insufficient for fulfilling the support needs of Nevada's 17 school districts, as well as the necessary functions required of Nevada Department of Education.

Other States

Many states have developed state technology plans in order to facilitate student learning through the use of technology and to provide adequate and efficient technology-focused professional development opportunities for instructors. It is important that educators continue to learn about and utilize the many resources for support available to them on the Internet.

Many states have used the ISTE's standards as the basis for the technology plans adopted and implemented by their state. The national technology standards set by ISTE address basic goals that need to be met by students, teachers, and administrators, as well as appoint specific indicators that suggest proficient advancement toward these goals.

Computer-Based Testing in Nevada

Computer-based high-stakes testing is inevitable. The Federal government gave a Notice of Intent in April of this year that computer-based testing will be in place by the 2013-2014 school year. By the 2015-2016 school year, states that have not fully implemented computer-based testing will have to absorb an added expense for the paper-and-pencil tests. At this time, it is unclear how this will affect Nevada's assessment budget, but it is clear that those districts that cannot fully implement a computerized, adaptive testing system will cause this budget to increase. It is therefore critical that Nevada plan and begin to prepare now and that the 2011 Legislature budget for the process. Waiting until the 2013 session would leave insufficient time to meet the deadline.

Two consortia have been formed nationally to affect this change to current testing practice. One is developing online testing and the other is developing computer-adapted testing. Both systems will be fully operational for field testing by the 2013-2014 school year. Any software used must be open-source so there will be no software costs. There will, however, be costs associated with needed hardware, especially since so many of Nevada's school computers are so old and, in Clark County's case, the computer labs are so heavily used by classes that they are not available for testing.

Large scale efforts are underway to convert high-stakes testing from paper-and-pencil methods to computer-based testing in North Carolina, South Carolina, Indiana, Oregon, Idaho, California, and Massachusetts. Three of these states have completed the conversion or are within a couple of years of

converting to 100% computer-based high-stakes testing and their experience is useful to see how Nevada might deal with some of the issues surrounding the conversion . Kansas has met its goal of 100% computer-based testing, Florida anticipates 100% by the 2010/2011 testing year, and Virginia anticipates a 100% conversion by the 2012/2013 testing cycle.

Kansas

The State of Kansas, in conjunction with the Center for Educational Testing and Evaluation, School of Education at the University of Kansas, developed a comprehensive online assessment program for high-stakes testing, designed to meet the requirements of the federal No Child Left Behind (NCLB) act. The Kansas Computerized Assessment (KCA) is administered to all students in Kansas, with the exception of those students needing accommodations.

One of the challenges Kansas encountered was the task of student tracking. Students in the Kansas school system must be entered into the Kansas Department of Education tracking system in order to take the computer-based exam. If students are not in the tracking system, they must take paper and pencil exams, and are not counted for AYP accountability. Students who are not in the tracking system will count against the school for participation and/or performance. Kansas addressed this issue by assuring that the schools know the dates by which each student must be in the tracking system and by sending reminders to districts and schools regarding the importance of getting all students' information entered.

Lack of student and teacher familiarity with the testing procedures presented another challenge for Kansas. Early in the transition to computer-based testing, there was some concern that the teachers and the students would not have adequate computer skills or would have difficulty using the software. Online tutorials for teachers and students, as well as practice tests given to students in order to familiarize them with the computer-based testing process have adequately dealt with these issues.

Other challenges faced by Kansas are the infrastructure, hardware, and technology base. The largest of this subset of challenges is monetary. Each district must find money for the computers used for testing; the state does not provide any funding for the KCA. Because each district and school must supply their own computers, some of them do not have enough hardware to test all of the children at the same time, which then necessitates a larger assessment window in order to accommodate all students. Additionally, specific software is needed to run the assessment, and each computer must be updated

with the newest version prior to the testing session. Computers must also be capable of running the software and therefore must be updated for compatibility. One of the potential technology-based challenges is the possibility of a power outage or loss of internet connection during testing. There was no evidence that either of these had ever occurred, however, in the event that one or both of these events should happen, the software automatically saves and can be restarted with the entry of a password. Schools and districts are instructed to plan for this eventuality and allow for up to two extra testing days.

Although there have been some challenges, Kansas reports many benefits as well. The cost savings of using a computer-based testing system are one very large benefit. Although only one savings figure is mentioned ($350,000 per year in printing costs), other financial benefits mentioned are savings in postage, scoring, and reporting costs that are associated with paper-and-pencil tests. A significant benefit is the availability of the results almost immediately after testing which enables teachers to use the results for immediate curriculum planning and to address student needs much more quickly and effectively. Teachers also see benefits in the testing procedures; they can track student performance as the students take the tests, allowing the teachers to track those students who may not have taken or finished a test and then arrange for the student to complete the sections they missed, resulting in more complete and reliable data.

Florida

Florida also has a comprehensive computer-based high-stakes testing system and as with Kansas, they have seen both challenges and benefits. Florida anticipates that the Florida Comprehensive Assessment Test (FCAT) will be 100% computer-based by the 2010/2011 testing year.

As with Kansas, Florida anticipated issues with teacher and student familiarity with computers and the computer-based testing procedures. This was addressed by offering training and practice sessions for both students and teachers. The training was in the form of both online tutorials and hands-on training by trainers sent to the districts/schools by the testing vendor.

Florida also has issues with testing facilities, specifically they are attempting to address a shortfall in adequate space for testing, lighting, and privacy issues (keeping monitors secure). As with Kansas, one of the major issues is funding. They are examining the use of bonds or other methods to help implement the FCAT computer-based testing statewide. In order to address possible technical needs, Florida works

very closely with their testing vendor for technical support. A comprehensive checklist and manual are provided to technology departments in each district that outline the exact requirements that must be met for testing. Field tests are performed, and a technical support team for training of personnel and set-up of the testing system is provided by the vendor.

Florida lists many benefits for the computer-based testing and although they do not discuss specific numbers when addressing the cost benefits, they list the same types of savings as does Kansas. The majority of savings for Florida come from printing, postage, scoring, and reporting. This is a common finding in all of the states that have moved toward computer-based testing. Florida also found that their students are very enthusiastic about computer-based testing. They find that both students and teachers give very positive feedback regarding the process and that buy-in is excellent. Florida is especially happy with the faster scoring and reporting of test results. This is especially advantageous because scoring and reporting can be done more efficiently, allowing for more instruction time before testing occurs and teachers have more opportunity to assure that students are introduced to concepts that will be tested.

Virginia

Of the states discussed here, Virginia seems to have the best plan to convert to 100% computer-based high-stakes testing and plans to be 100% by the 2012/2013 testing year. In 2000, the Standards of Learning Technology Initiative (STLI) was implemented. This initiative was created in order to meet their goals of, (1) one computer for every five students; (2) Internet-ready, local area network capability in every school; and (3) high-speed, high-bandwidth capabilities for instructional, remedial, and testing needs. These goals are anticipated to be met by 2013.

Due to implementation of STLI, the only challenge Virginia anticipates is the lack of student and teacher familiarity with computer software and equipment. This challenge is being addressed with help from the testing vendor, who has made online tutorials and practice tests available to students and teachers.

Virginia sees many more benefits than challenges for the conversion from paper-and-pencil to computer-based testing including a faster return of student scores, increased instructional and remediation time due to timely return of student results, improved efficiency of data collection and management, increased accuracy of student data, increased security of test content and student data, reduced administrative burdens on school and division staff, and increased student interest. There is no

direct discussion of the cost savings benefits but this may be due to the fact that they began their conversion in 2000, making it difficult to locate that information.

These three states discussed here have all faced and overcome challenges and reaped many benefits from their conversion from paper-and-pencil high-stakes testing to computer-based testing. Many issues are common among them, such as the concern that teachers and students may have difficulty with computer software and equipment, and each has addressed this concern. Both Florida and Kansas have experienced funding issues. However, it seems that the implementation of a solid, well thought out plan up-front, such as the Virginia STLI, helps to address the funding issues, as well as some of the challenges that states find as they move through the conversion process.

The states also seem to find the same benefits: cost savings from the reduction or elimination of printing, postage, scoring, and reporting of the paper-and-pencil tests; student enthusiasm and teacher buy-in for the new testing process; and the significant benefits of increased efficiency in scoring and reporting which facilitates instruction on many levels.

Nevada

Currently, 15 of Nevada's 17 school districts use some form of district-wide computer-based testing. The exceptions are Washoe and Clark County School Districts, which do computer-based testing in only some of the schools. District technology coordinators were asked about the opportunities and challenges associated with computer-based testing in their districts. They identified current infrastructure and access to adequate technology as the largest challenges faced by their districts, not unlike the experiences of Kansas, Florida and Virginia. Many coordinators noted the lack of computer lab availability, poor Internet access, and inadequate bandwidth capabilities as significant impediments to implementing computer-based testing. Training for teachers was also noted as necessary but lacking.

The technology coordinators from districts where some computer-based testing is being done stated that Measure of Academic Progress (MAP) testing has been successful and has been favorably received by the students in their district. The main concern for implementing this type of testing, however, is ensuring that sufficient resources are available to successfully put this assessment strategy into practice.

When asked about their thoughts on using computer-based testing for high school proficiency exams, many of the technology coordinators interviewed stated that they did not see any problems associated

with using this method of testing but did see many advantages. Examples of potential advantages to this technology application included instant results, a controlled environment, a decrease in the chances of student cheating, and a decrease in paper use. Many coordinators noted that this type of test taking would be very beneficial for high school students, who tend to be proficient in technology by the time they take their high school proficiency exams. Some of the disadvantages noted were lack of technological capabilities within their district (i.e. there may not be enough computers available to accommodate all of the students that will need to take the exam), a potential for technology failure, and a lack of software needed in order to support this type of testing within the districts. Again, all are issues mentioned by Kansas, Florida and Virginia, and all were eliminated as significant barriers to the adoption of computer-based testing.

A review of this same section in the 2008 needs assessment report reveals that little, if anything, has changed. Significant barriers to computer-based testing remain in all districts in spite of almost universal enthusiasm for it. Technology coordinators were optimistic then and now about the potential for using computer technology in this way, but none were optimistic that the requisite infrastructure would be in place any time soon. Utilizing technology in the testing process provides students with technology interaction opportunities and provides teachers with a resource that yields fast and accurate student data from which they can base changes in curriculum to better prepare their students. Data-driven decision-making is increasingly demanded of teachers and administrators, and computer-based testing allows teachers to analyze and respond to student progress in a timely and efficient manner. In addition to convenience and accuracy, computer-based testing also allows for reduction in paper use, printing costs and postage associated with paper tests.

In that computer-based testing will be here in 2013, Nevada must begin planning now so that districts, schools, teachers, technology coordinators, and students are well prepared to take advantage of the benefits and minimize the problems. One of the suggestions made to consider for implementation is to invest heavily in laptops so that each student has access to one. The new netbooks are inexpensive and yet sufficiently powerful for testing and the success of one-to-one laptop initiatives such as Maine's show that they are well worth the investment. With prices in the $200-$400 range, several netbooks could be purchased for the price of one desktop machine.

Educational Technologies Improving Instructional Development and Delivery

Technology integration into the curriculum at all grade levels is a goal that is supported statewide, as well as nationally, by legislators, administrators, educators, parents, and students alike. In order to encourage and facilitate this process, the state of Nevada must take the necessary steps to foster technology efficacy among its teachers so they can provide their students the 21st Century technology skills needed to succeed. The purpose of this section is to focus on specific technological needs stated by the technology coordinators surveyed and the role laptop computers and Web-based collaborative technologies have in education.

Expanded Use of Laptop Computers

When asked about the opportunities and challenges associated with the expanded use of laptops by students and teachers, a majority of the technology coordinators stated student engagement and their acquisition of current technology skills as the greatest opportunities presented by laptop computer use. Many of the technology coordinators that were interviewed discussed the availability of laptop carts in a majority of the schools within their district. One coordinator also referred to the use of the iPod Touch, noting that many schools within his district had access to two per classroom. The coordinators interviewed also stated that laptop use within the classroom has encouraged student collaboration during class time.

When questioned about challenges presented by increased laptop use, many coordinators cited inadequate funding, lack of wireless Internet access, and proper technology support. Two coordinators even stated that guaranteeing the security of the laptops would present problems within their districts. One coordinator stated that each district should keep in mind that while this type of technology integration might benefit some, it may not benefit others.

The increase in use of laptop computers in some Nevada school districts has provided more opportunities for teachers and students to successfully combine education with technology. Currently, Lincoln County School District is piloting a one-to-one laptop initiative at one of its middle schools. This initiative is funded through the Commission on Educational Technology. One of the benefits to increasing laptop use and access among teachers and students is the potential transition from

traditional textbooks to electronic textbooks. The technology coordinators surveyed gave mixed responses when asked their opinion on the increase in laptop use to facilitate the replacement of textbooks. Some stated that this change would most likely be embraced by teachers and students alike, while others stated that many teachers in their district would most likely struggle with the technological replacement of textbooks. Coordinators addressed some of the issues that the switch from hard copy to electronic textbooks would present, such as a lack of funding for the purchase of electronic books, finding an electronic source that has quality educational material, and the technical support needed in order to implement this transition.

Technology coordinators interviewed indicated that many teachers in their districts have inquired about using electronic textbooks, which has urged coordinators to research electronic textbooks and their impact in the classroom. One coordinator mentioned that electronic textbooks were introduced in high school technology classes within his district, but it was discovered that making the transition from bound textbooks to electronic textbooks does not save the district any money at this point in time. However, as electronic textbooks become more in demand, prices will drop. Already we are seeing prices drop for books on Kindles and iPads, with some titles as low as $5.

Textbook adoption cycles are not currently aligned with changes to state standards resulting in books being used in classrooms that do not support the standards and money being spent on textbooks that do not support what students are tested on. The adoption cycle has more to do with which district's turn it is and whether or not there is funding. Adopting netbooks would make electronic textbooks more feasible, would allow adoption cycles to more easily be aligned with changes in state standards and would more easily enable the conversion to computer-based testing. Again, planning now is the key.

Overall, a large majority of the technology coordinators surveyed agreed that the distribution of laptop computers to students in their district would have a positive impact on the student population. According to one coordinator, providing students with laptops also provides them with a way to access education outside of the classroom. While laptop use may have a positive impact on students, technology coordinators still addressed potential issues with district-wide laptop distribution, such as security issues, software and electronic textbook access, and the lack of adequate technology support for both teachers and students. The most frequent concern among the coordinators surveyed was student use of the Internet on district-provided laptop computers outside of the classroom. For example, two coordinators referenced lawsuits in other states that have occurred due to students using

school-provided laptops to access inappropriate materials on the Internet. Many coordinators also noted that if laptop use within classrooms expanded, many teachers would have to be adequately trained in order to best educate their students on this type of technology and its wide range of uses. Many states have adopted laptops extensively and while there are problems such as those mentioned by the technology coordinators, there are also many benefits for students and the problems have been managed.

Internet Use

In the responses collected, Technology Coordinators stressed the importance of Internet use among both teachers and students in the classroom. When asked to identify the ways in which teachers can effectively utilize the Web to support their teaching, coordinators suggested using the Internet as a research tool for students, a source for posting class materials and assignments, and as a resource for communication and collaboration with other educators. Many coordinators also noted that the Web can be used as a great source for finding new, innovative ways to teach numerous subjects.

In response to questions regarding Internet use in the classroom, Technology Coordinators listed a variety of ways that teachers are currently utilizing the Internet in their classrooms and integrating Web-based materials into their curricula. For example, teachers are using class Web pages to post in-class assignments and homework. The coordinators surveyed also stated that teachers within their districts are encouraging students to present material using Smart Boards and to access the Internet to complete class assignments and research. In addition to in class activities, many coordinators stated that teachers within their district encourage active learning outside the classroom using the Internet. For example, two coordinators mentioned the use of blogs, podcasts, and videos as resources for practice tests students complete at home.

Technology Coordinators also stated that teachers within their districts frequently use the Internet as a collaboration tool. A majority of the coordinators surveyed indicated that teachers within their districts rely on the Internet to communicate with other teachers through e-mail, blogs, Web pages, and social networking sites. Two coordinators discussed the increased use by teachers of the Moodle software and district-wide wikis, which has increased teacher collaboration within their districts.

When asked to list the greatest challenges associated with Internet use by teachers within their districts, an overwhelming majority of Technology Coordinators identified inadequate professional development

opportunities as the greatest challenge. Coordinators stated that due to a lack of training, many teachers do not know how to effectively incorporate Internet use into their curricula. One coordinator stated that it is impossible for teachers to share online resources with their students when teachers are not even aware of the resources that can currently be accessed online. Other challenges to Internet use by teachers provided by the coordinators included strict Internet filters and a lack of adequate software and virus updates on classroom computers, a lack of funding for the purchase of current equipment, and limited access to computers.

General Observations

Increasing the use of computer-based testing and assessments and putting laptops in classrooms throughout the state of Nevada would have a positive impact on student technology literacy, would expand the possibilities of teaching and learning styles within the classroom setting, would enable adoption of electronic textbooks and would facilitate a textbook adoption cycle that would save money and align with changes to state standards. However, in order to maximize the use of these types of technologies, districts would need to be able to provide adequate hardware and software, reliable access to the Internet, expand bandwidth capabilities, encourage professional development centered on technology literacy, and provide teachers throughout the district with technological support. There is a unique timing opportunity right now to critically examine these aspects of educational technology in Nevada, make changes that serve the students as well as meet the upcoming requirement for computer-based testing, and do this in carefully examined, planned and executed manner. Given the potential for increased costs in the absence of good planning, this is also the fiscally responsible thing to do.

Current Capacity of Nevada Schools

Survey Results

Survey requests were sent to all 17 districts' Technology Coordinators and all 17 responded. Of the 3,272 survey requests sent out via e-mail to teachers, 1,912 responses were collected for a response rate of 58.4%. Table 2 shows the response levels from each district, by category of respondent. Because the districts were asked to contact the parents, the total number of requests is unknown.

Table 2 Number of Respondents by District and Category

District	IT Coordinator	Teachers	Parents
Carson City SD	1	147	72
Churchill County SD	1	17	1
Clark County SD	1	925	572
Douglas County SD	1	97	0
Elko County SD	1	81	0
Esmeralda County SD	1	4	2
Eureka County SD	1	14	17
Humboldt County SD	1	96	58
Lander County SD	1	14	0
Lincoln County SD	1	22	12
Lyon County SD	1	116	0
Mineral County SD	1	20	6
Nye County SD	1	80	50
Pershing County SD	1	18	0
Storey County SD	1	10	0
Washoe County SD	1	203	84
White Pine County SD	1	48	41

Technology Coordinator Surveys

The following information was collected from the 17 district Technology Coordinators in Nevada. Each district was represented in the responses given by each Technology Coordinator. Each coordinator was asked a series of questions regarding the software and technical support provided to teachers and the technological capabilities of the classrooms within their districts.

In the Technology Coordinator survey, coordinators were asked to describe the technological capabilities of a typical low-end classroom, a typical middle-end classroom, and typical high-end classroom in their district. They were asked to address issues such as computer and projector availability, Internet capability, and any other types of technology that are currently available for teacher and student use in their district. Finally, they were asked to provide an approximate percentage of the classrooms in their district that closely fit the classroom descriptions they provided.

Technology Coordinator Survey Results

The following table displays the survey responses by the Technology Coordinators when asked about the level and type of technology in the typical classroom in their district. The respondents were asked to

describe the technology available in their typical low-end classroom, their typical middle-end classroom and their typical high-end classroom. Results for all 17 counties are displayed by district and by classroom level.

Table 3 Responses to "Describe a common low-end, middle-end, and high-end classroom that a visitor might see in your district."

County	Common Low-End Classroom	Common Middle-End Classroom	Common High-End Classroom
Carson City	**Computer:** 1 computer **Projector:** Yes **Other Technologies:** Smart Board Audio Enhancement System	**Computer:** 2 to 3 computers **Projector:** Yes **Other Technologies:** Smart Board Audio Enhancement System Document Camera	**Computer:** 16 Laptops (cart) or Class iTouch set **Projector:** Yes **Other Technologies:** Smart Board Audio Enhancement System Document Camera
Churchill	**Computer:** Teacher computers Older **Projector:** Did not respond **Internet Capabilities:** Did not respond **Other Technologies:** None	**Computer:** Teacher computers Newer 5 student computers **Projector:** Did not respond **Internet Capabilities:** Did not respond **Other Technologies:** Smart Board Audio Enhancement System	**Computer:** Smart Lab **Projector:** Did not respond **Internet Capabilities:** Did not respond **Other Technologies:** CAD Lab The Company
Clark	**Computer:** 1 teacher computer <5 years old **Projector:** None **Internet Capabilities:** Good **Other Technologies:** None	**Computer:** 1 teacher computer 1 student computer >3 years old Shared Laptop cart **Projector:** Yes **Internet Capabilities:** Good **Other Technologies:** Smart Board Classroom responders	**Computer:** 1 teacher computer 2 student computers >3 years old Laptop cart **Projector:** Yes **Internet Capabilities:** Good **Other Technologies:** Smart Board Classroom responders

County	Common Low-End Classroom	Common Middle-End Classroom	Common High-End Classroom
Douglas	**Computer:** 1 teacher computer **Projector:** Yes **Internet Capabilities:** Good **Other Technologies:** None	**Computer:** 1 teacher computer **Projector:** Yes **Internet Capabilities:** Good **Other Technologies:** None	**Computer:** 1 teacher computer **Projector:** Yes **Internet Capabilities:** Good **Other Technologies:** Smart Board Student response system Document camera
Elko	**Computer:** 1 teacher computer 4 years old **Projector:** None **Internet Capabilities:** Good **Other Technologies:** None	**Computer:** 1 teacher computer 4 years old 4 student computers **Projector:** Yes **Internet Capabilities:** Good **Other Technologies:** Smart Board School lab	**Computer:** Laptop cart iPod cart **Projector:** Yes **Internet Capabilities:** Good **Other Technologies:** Smart Board Student response System Audio enhancement System
Esmeralda	**Computer:** Did not respond **Projector:** None **Internet Capabilities:** Good **Other Technologies:** None	**Computer:** 1 computer **Projector:** None **Internet Capabilities:** Good **Other Technologies:** None	**Computer:** 1 computer **Projector:** None **Internet Capabilities:** Good **Other Technologies:** Smart Boards
Eureka	**Computer:** 1 teacher computer **Projector:** Yes **Internet Capabilities:** Good **Other Technologies:** Smart Board	**Computer:** 1 teacher computer 1 student computer 3 years old **Projector:** Yes **Internet Capabilities:** Good **Other Technologies:** Smart Board	**Computer:** Laptop cart **Projector:** Yes **Internet Capabilities:** Good **Other Technologies:** Smart Board

County	Common Low-End Classroom	Common Middle-End Classroom	Common High-End Classroom
Humboldt	**Computer:** 1 teacher computer 5 years old **Projector:** None **Internet Capabilities:** 1.5 mg **Other Technologies:** Shared multimedia carts	**Computer:** 1 teacher computer 5 years old 5 student computers 5 to 10 years old **Projector:** None **Internet Capabilities:** 1.5. mg **Other Technologies:** Shared multimedia carts	**Computer:** 1 teacher computer 5 years old 4 student computers 5 to 10 years old **Projector:** Yes **Internet Capabilities:** 1.5 mg **Other Technologies:** Smart Board Elmo
Lander	**Computer:** Older, low-end computers **Projector:** None **Internet Capabilities:** Did not respond **Other Technologies:** None	**Computer:** 1 teacher computer Newer 5 student computers **Projector:** None **Internet Capabilities:** Did not respond **Other Technologies:** Smart Board Audio Enhancement System	**Computer:** Smart Lab **Projector:** Did not respond **Internet Capabilities:** Did not respond **Other Technologies:** None
Lincoln	**Computer:** 1 teacher computer **Projector:** None **Internet Capabilities:** Did not respond **Other Technologies:** None	**Computer:** 1 teacher computer 2 student computers **Projector:** None **Internet Capabilities:** Did not respond **Other Technologies:** None	**Computer:** Netbooks for each student **Projector:** Yes **Internet Capabilities:** Did not respond **Other Technologies:** Smart Board Digital cameras Video cameras
Lyon	**Computer:** 1 computer 5 years old **Projector:** None **Internet Capabilities:** Good **Other Technologies:** None	**Computer:** 1 teacher laptop Less than a year old **Projector:** Yes **Internet Capabilities:** Good **Other Technologies:** Document Camera	**Computer:** Multiple Computers **Projector:** None **Internet Capabilities:** Good **Other Technologies:** Document Camera Smart Board

County	Common Low-End Classroom	Common Middle-End Classroom	Common High-End Classroom
Mineral	**Computer:** 1 teacher computer Older than 5 years old **Projector:** None **Internet Capabilities:** Good **Other Technologies:** None	**Computer:** 1 teacher computer 2-3 student computers **Projector:** No **Internet Capabilities:** Good **Other Technologies:** None	**Computer:** 1 teacher computer 2-3 student computers **Projector:** Did not respond **Internet Capabilities:** Good **Other Technologies:** Smart Board
Nye	**Computer:** Student computers **Projector:** Yes **Internet Capabilities:** Did not respond **Other Technologies:** Document Camera Smart Board	**Computer:** Student computers **Projector:** Yes **Internet Capabilities:** Did not respond **Other Technologies:** Document Camera	**Computer:** Student computers Laptop carts **Projector:** Yes **Internet Capabilities:** Did not respond **Other Technologies:** Power Point Smart Board
Pershing	**Computer:** 1 teacher computer 1 student computer **Projector:** Yes **Internet Capabilities:** Good **Other Technologies:** None	**Computer:** 1 teacher computer 3 student computers **Projector:** Yes **Internet Capabilities:** Good **Other Technologies:** iTouch devices Smart Boards Wireless response devices	**Computer:** Laptop cart (15 Computers) **Projector:** Yes **Internet Capabilities:** Good **Other Technologies:** Smart Board Document camera Printer
Storey	**Computer:** 1 teacher computer <5 years old 1 student computer >5 years old **Projector:** None **Internet Capabilities:** Did not respond **Other Technologies:** Printer	**Computer:** 1 teacher computer <5 years old Many student Computers >5 years old **Projector:** None **Internet Capabilities:** Did not respond **Other Technologies:** Printer Audio Enhancement System	**Computer:** 1 teacher computer <5 years old Many student Computers >5 years old **Projector:** Yes **Internet Capabilities:** Did not respond **Other Technologies:** Smart Board Printer Audio Enhancement System

County	Common Low-End Classroom	Common Middle-End Classroom	Common High-End Classroom
Washoe	**Computer:** 1 teacher computer **Projector:** None **Internet Capabilities:** Did not respond **Other Technologies:** None	**Computer:** 1 teacher computer **Projector:** Yes **Internet Capabilities:** Did not respond **Other Technologies:** Smart Board	**Computer:** Laptop cart iPod cart **Projector:** Yes **Internet Capabilities:** Did not respond **Other Technologies:** Voting response system
White Pine	**Computer:** 1 teacher computer 2 student computers 8 years old **Projector:** None **Internet Capabilities:** Good **Other Technologies:** None	**Computer:** 1 teacher computer 3 student computers 8 years old **Projector:** None **Internet Capabilities:** Good **Other Technologies:** Smart Board	**Computer:** Laptops and iPods **Projector:** None **Internet Capabilities:** Good **Other Technologies:** Smart Board

The information presented in Table 3 shows that classroom technology availability varies between districts in Nevada, as well as between classrooms within the same district. Based on the information provided by the Technology Coordinators surveyed, a typical low-end classroom in Nevada contains one or two computers that are older and used only for administrative tasks. A low-end classroom may or may not have access to a projector and reliable Internet access. A few coordinators reported that a low-end classroom in their district may have a functioning printer, enhanced audio system, and a Smart Board. After taking an average of the percentages of low-end classrooms within each district as reported by Technology Coordinators, approximately 37.2% of Nevada classrooms fall into the "low-end classroom" category (excluding Esmeralda and Pershing counties). The percentages reported by Esmeralda and Pershing counties did not reflect an accurate account of sites within each district (i.e., Esmeralda county indicated 6% of schools, rather than 100%). Therefore, these percentages were excluded from the state average.

A typical middle-end classroom in Nevada contains a computer for teacher use and administrative tasks and two to five computers for student use. Internet access is provided and access to a projector for classroom use is available. Other technologies reported by coordinators that can be found in a middle-end classroom include Smart Boards, enhanced audio systems, printers, student response devices, and a document camera. After taking an average of the percentages reported by the coordinators surveyed,

approximately 42.4% of Nevada classrooms fall into the “middle-end” category in regard to technology access (excluding Esmeralda and Pershing counties).

Finally, based on the collected responses, a typical high-end classroom in Nevada contains a computer for teacher use and administrative tasks and access to multiple computers for student use. This access can be found in the form of laptop carts, computer labs, or access to iPod Touches. Internet access is provided and access to a projector for classroom use is available, if a projector is not already provided in each classroom. Other technologies found in high-end classrooms in Nevada, as reported by district Technology Coordinators, include Smart Boards, audio enhancement systems, a printer, document camera, student response devices, and access to a CAD lab. After taking an average of the percentages reported by the coordinators, approximately 16.2% of Nevada classrooms fall into the “high-end classroom” category in regard to technology access (excluding Esmeralda and Pershing counties).

Teacher Surveys

The following information was collected from surveys completed by 1,912 teachers from 17 districts in Nevada. This represents a 58.4% response rate from 3,272 teachers asked to respond, or approximately 0.44% of the total number of Nevada teachers. These data describe the technology environment in Nevada’s classrooms and provide a snapshot of the available technology.

Nevada Classrooms

Ninety-nine percent of the teachers responding stated they have classrooms with computers for teacher administrative tasks. These computers are between three and four years old (Figure 1).

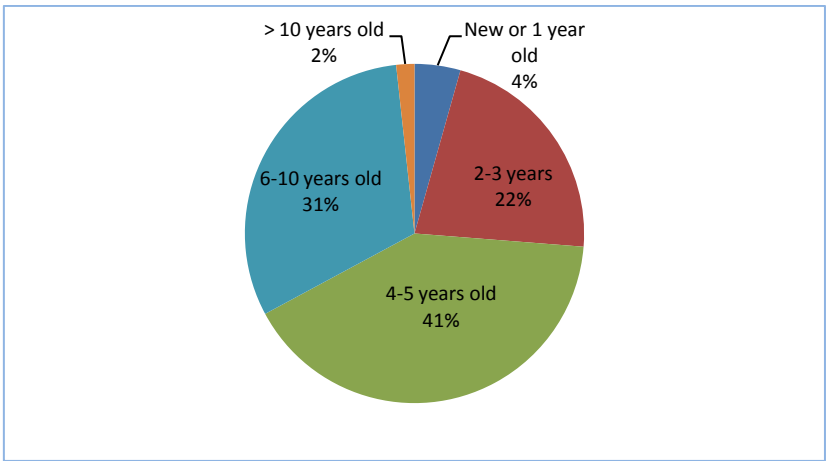

Figure 1 Age of Teacher Computers

Sixty-three percent of the teachers responding to the survey stated they have an LCD projector, 31% noted they could project from a computer to a TV, and 29% said they have an interactive whiteboard (Figure 2). Nineteen percent have a digital camera and 9% have a digital video camera.

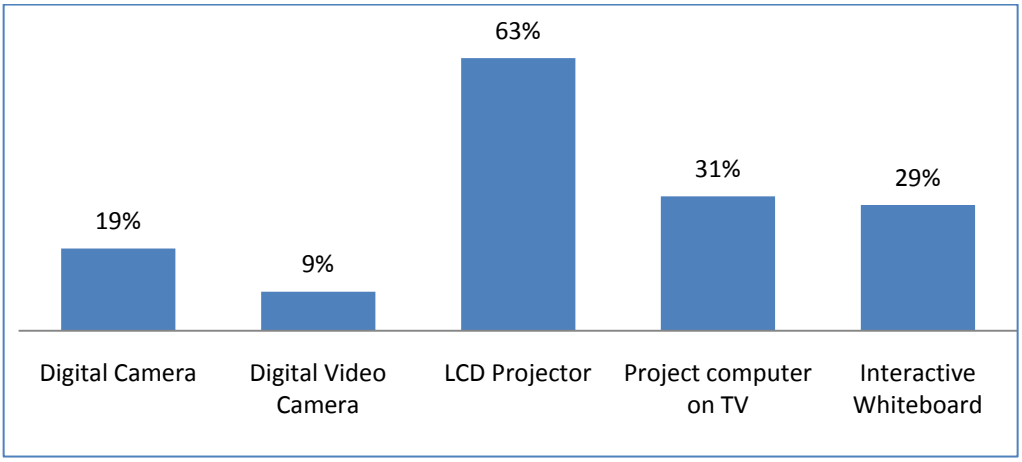

Figure 2 Responses to "Which of the following technology equipment do you have in your classroom all the time statewide?"

Among all surveyed districts, the way that teachers displayed their information was varied. Smaller districts tend to use, digital video cameras, LCD projectors, televisions showing computer displays, and interactive whiteboards. Larger districts use LCD projectors, televisions showing computer displays, and interactive whiteboards. (Figure 3).

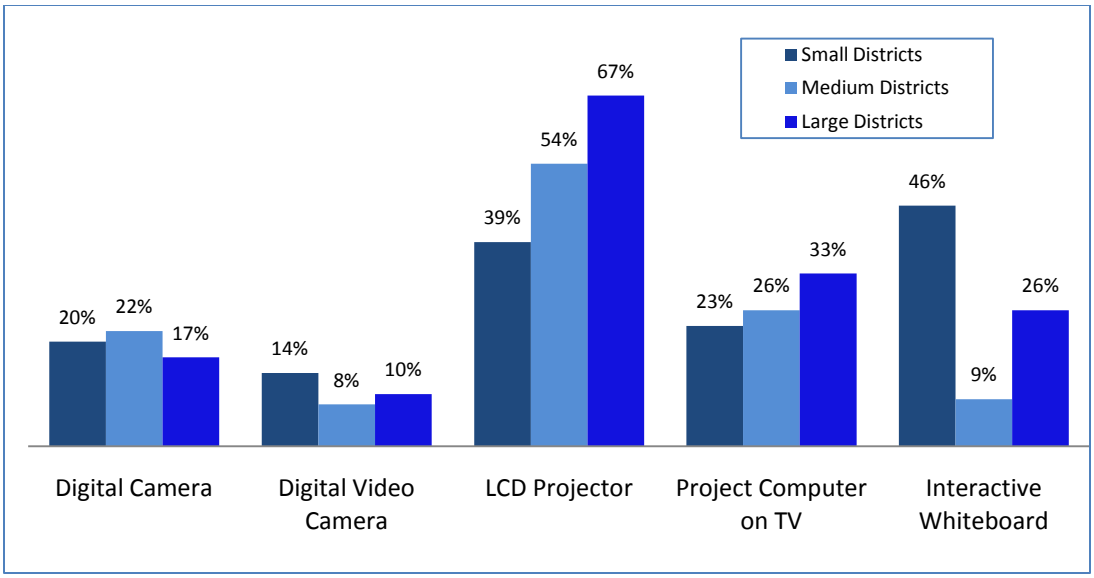

Figure 3 Responses to "Which of the following do you have in your classroom all of the time as responded by large, medium and small districts?"

Sixty-two percent of the teachers reported having computers in their classrooms for student instructional purposes. The number of students per computer has changed slightly since the 2008 study, but there is not a noticeable trend (Figure 4).

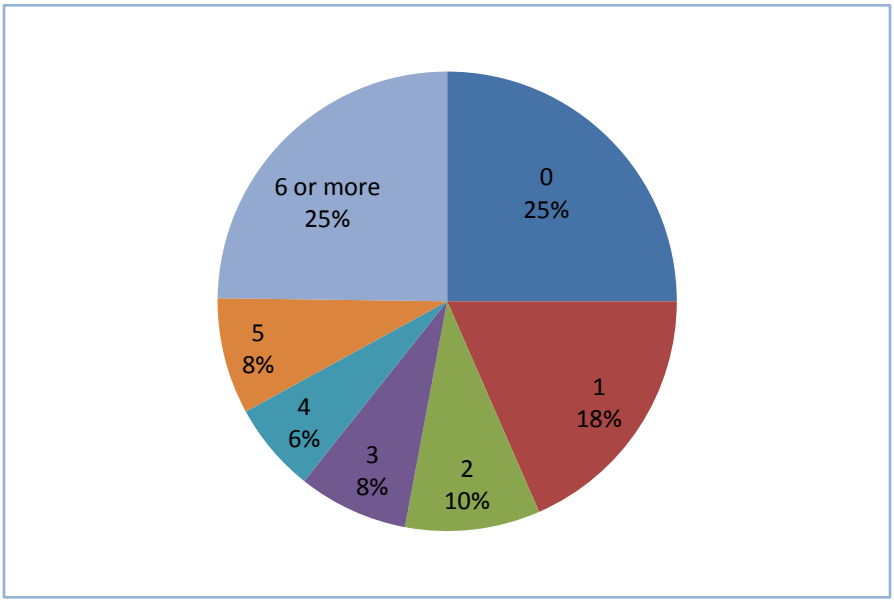

Figure 4 Number of Students Per Computer during a Typical Class

Ninety-six percent of responding teachers reported that their classroom has Internet access. Speed was reported as quick, although many teachers were neutral on the question. Thirty-nine percent of Washoe

County teachers stated their Web pages load very quickly or quickly and 34% of Clark County teachers stated their Web pages load very quickly or quickly. A similar percentage of teachers in the two districts said that Web pages load neither quickly nor slowly (Figure 5 and 6).

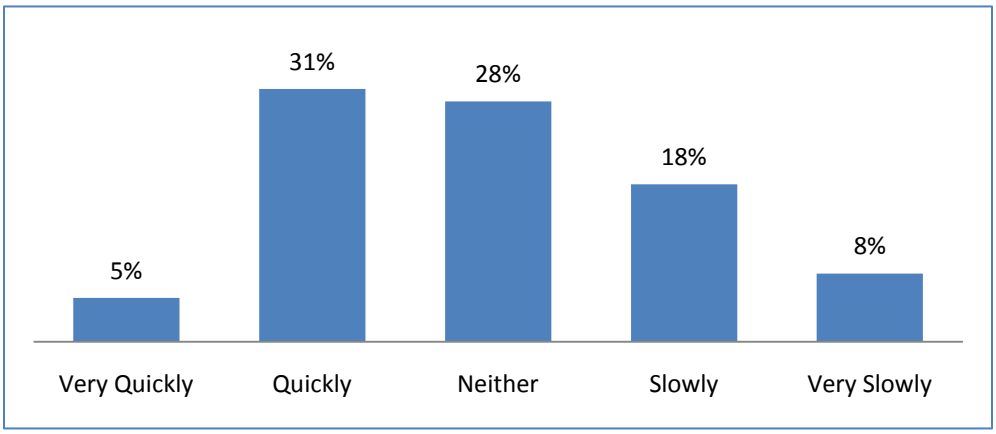

Figure 5 Classroom Internet Speed is Such that Online Videos begin playing

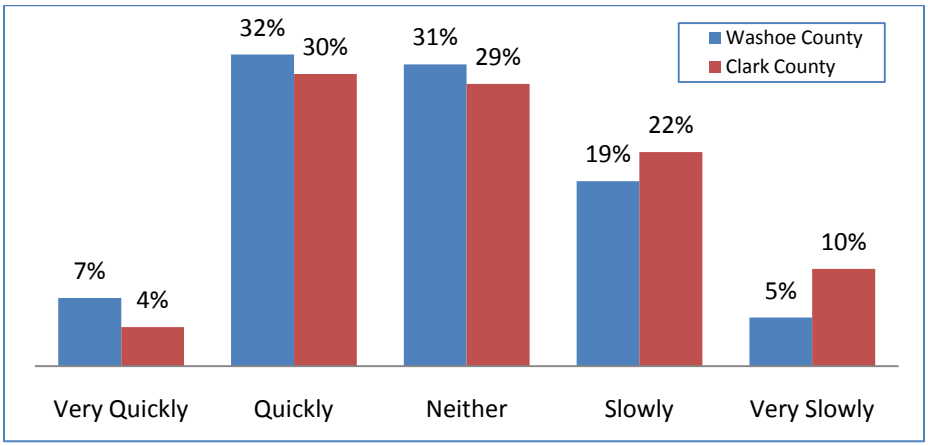

Figure 6 Comparison of Washoe County SD and Clark County SD: Classroom Internet Speed is such that Online Videos Begin Playing

Schools

This section explains the technology capacity of schools, their access to technology, and what technology the teachers have in their classrooms.

The most common technology available to classrooms is the LCD projector, followed by computer-TV connectivity and interactive whiteboards. When the data were further defined by large, medium, and small school districts, smaller districts had all surveyed technology available in their classrooms. Larger districts had a greater number of computers hooked up to TV displays and smaller numbers of interactive whiteboards. When looking at the data on an individual district basis, most districts have projectors and whiteboards, but smaller districts appear to have greater availability of all surveyed technology. (Figures 7 and 8).

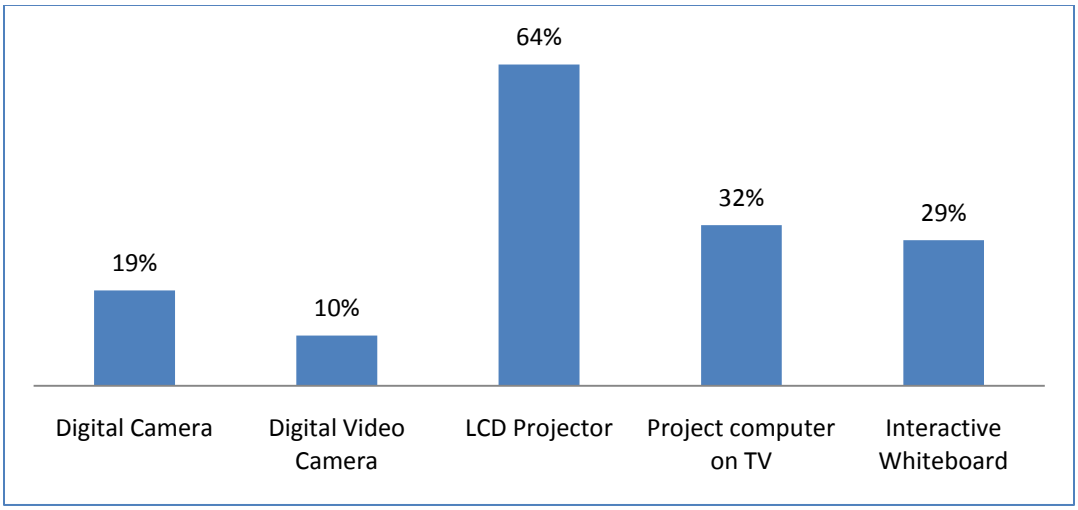

Figure 7 Responses to "Which of the following do you have in your classroom all of the time?"

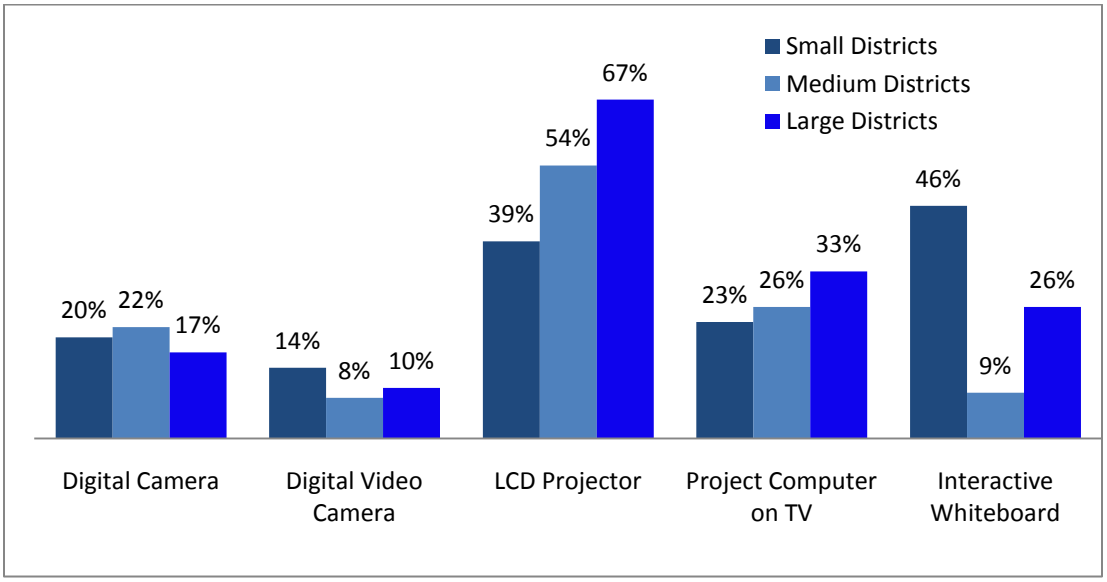

Figure 8 Responses to "Which of the following do you have in your classroom all of the time?"

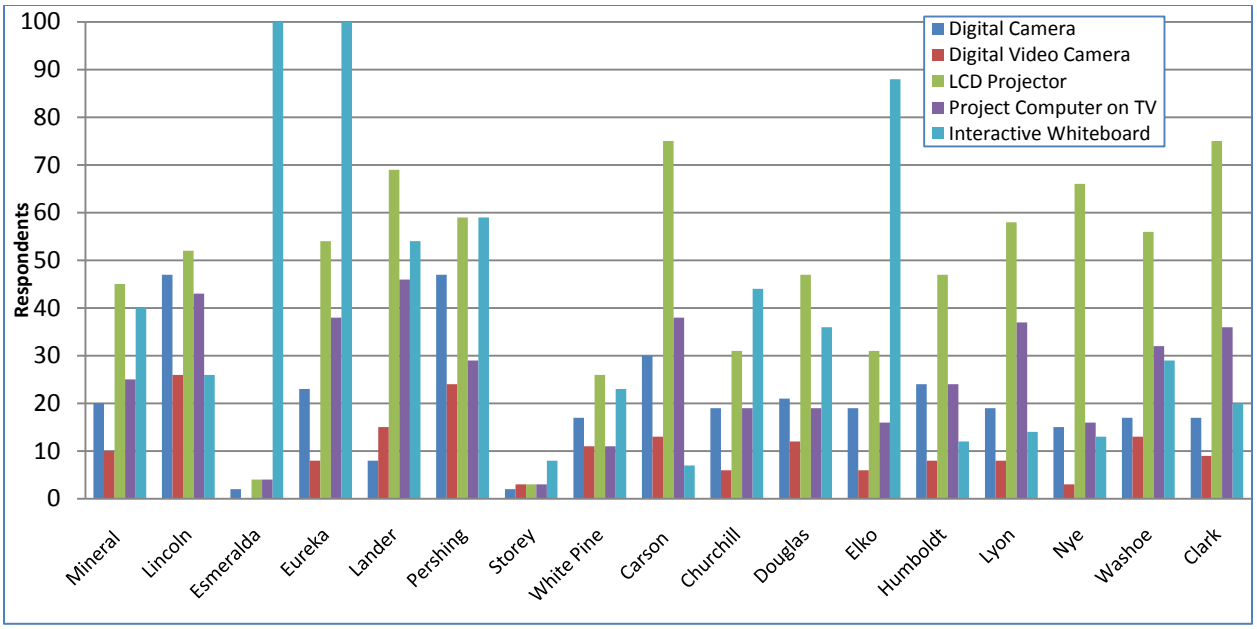

Figure 9 Comparison by School Districts: Which of the following do you have in your classroom all of the time.

Teachers also indicated that most of the technology that is not always available in their classroom can often be checked out from a central pool (Figure 10 and 11).

When the data in Figure 10 is further divided by district, the availability of equipment that can be in the classrooms for a finite time is more defined. Smaller school districts appear to have a broader range of available equipment for their teachers, whereas larger districts tend to have specific types of equipment available (Figure 11).

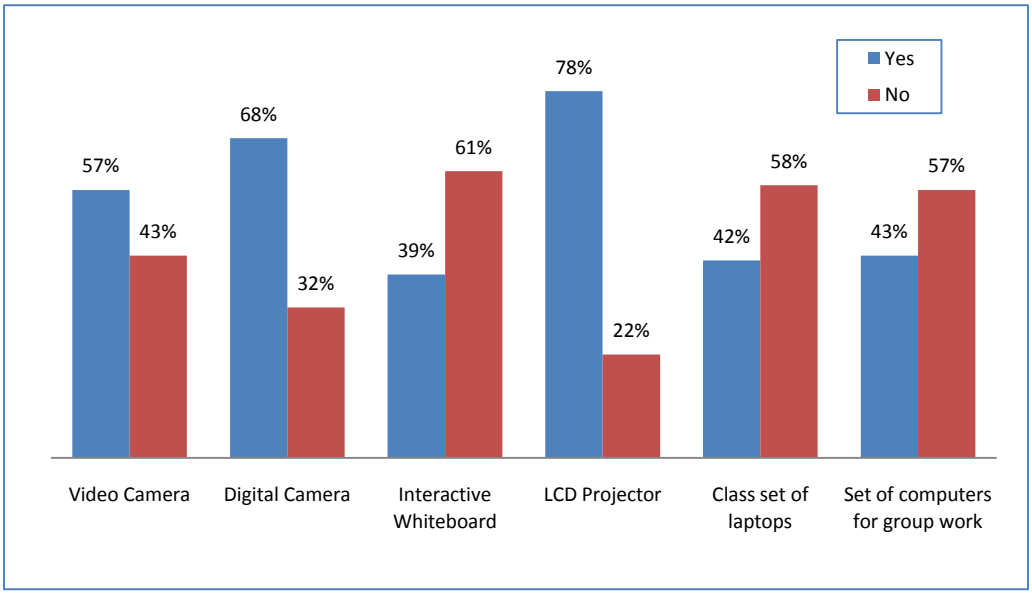

Figure 10 Responses to "Teacher can Sign up/Check-out Technology for a Finite Time in Classroom."

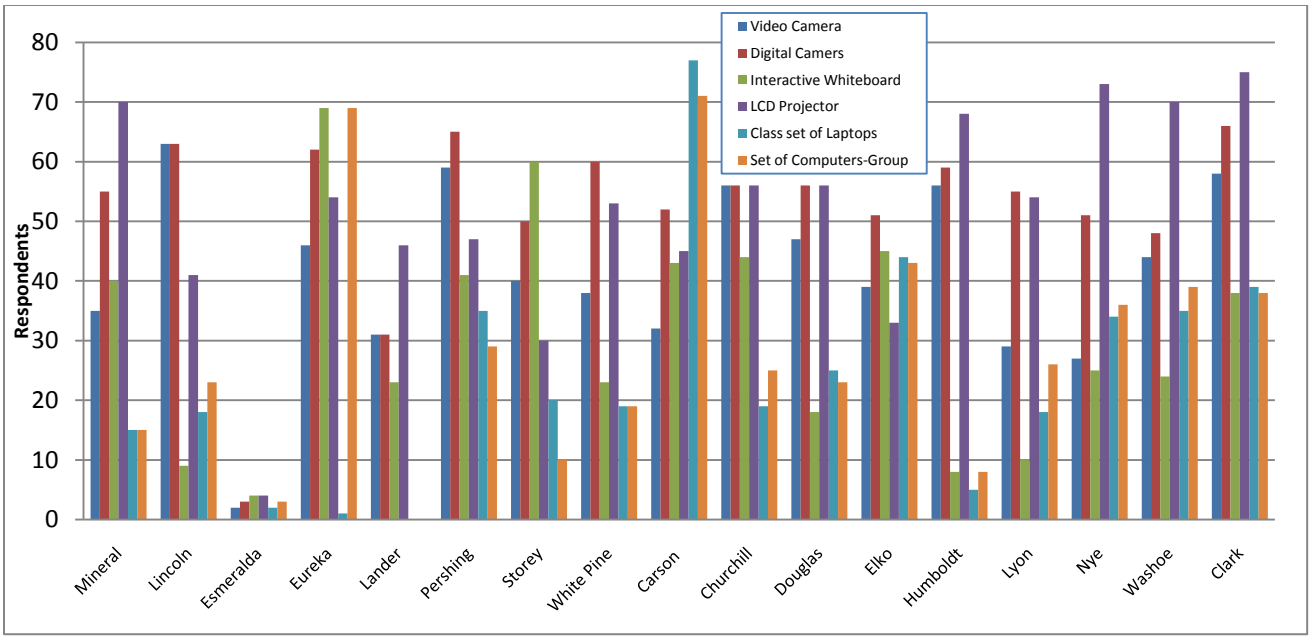

Figure 11 Comparison by School Districts: Responses to "What technology equipment can you arrange to have in your classroom for a finite time."

Availability of technology equipment has increased since the 2008 report. Teachers have more access to interactive whiteboards, LCD projectors, and class sets of laptops (Table 4).

Table 4 Comparison of STNA 2008 and 2010 Reports on Technology Available via Check Out System

Available Technology-Check out system	2008 Report	2010 Report
Video Camera	Not reported	57%
Digital Camera	Not reported	68%
Interactive Whiteboard	23%	39%
LCD Projector	59%	78%
Class set of laptops	31%	42%
Set of Computers for Group work	Not reported	43%

Technical Support:

Across the state, 48% of the respondents thought that the time required to obtain technical assistance was minimal, 36% disagreed, and 16% were neutral on the question (Figure 12). Of the teachers who responded, 46% agreed that there was adequate technical support, 38% disagreed, and 16% were neutral on the question (Figure 13).

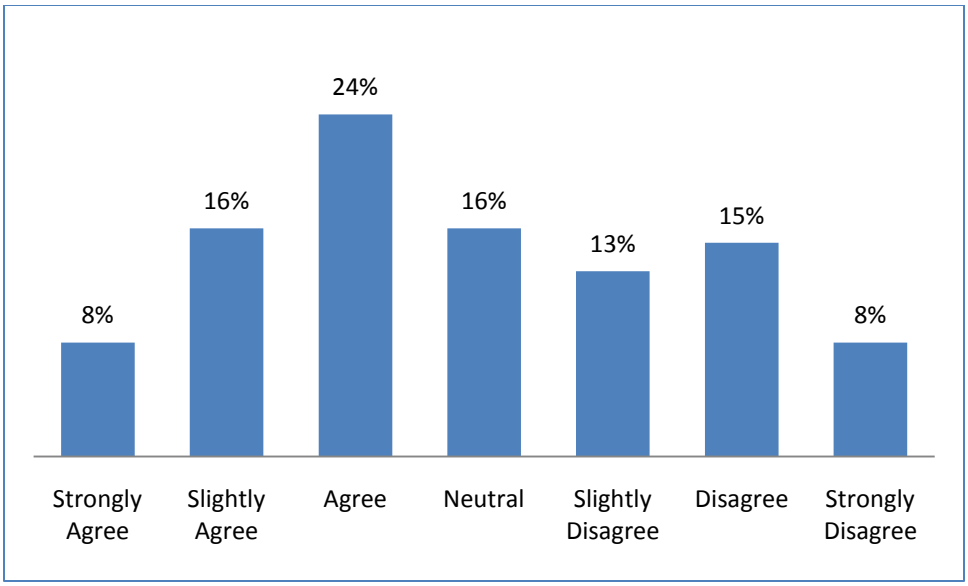

Figure 12 Responses to "Time Required to Get Technical Assistance is Minimal."

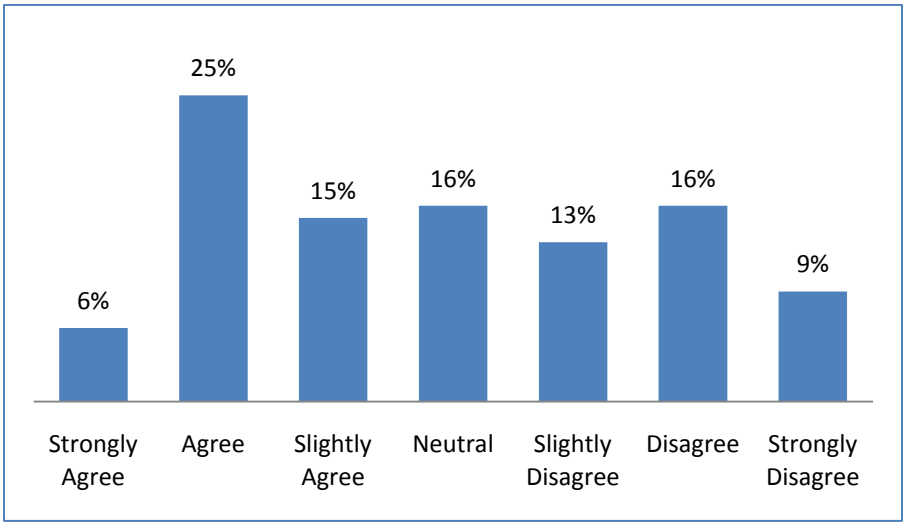

Figure 13 Responses to "There is an Adequate System for Technical Support."

Among respondents outside of Clark County, 42% strongly agreed or slightly agreed that the time to get technical assistance was minimal and 42% strongly disagreed or slightly disagreed. Sixty eight percent of the Clark County teachers who responded to the survey question strongly agreed or slightly agreed that the time required to get technical assistance was minimal and 17% strongly disagreed or slightly disagreed that the time was minimal. Overall, Clark County teachers felt they could get assistance when needed and other Nevada school districts were slightly dissatisfied (Figure 14).

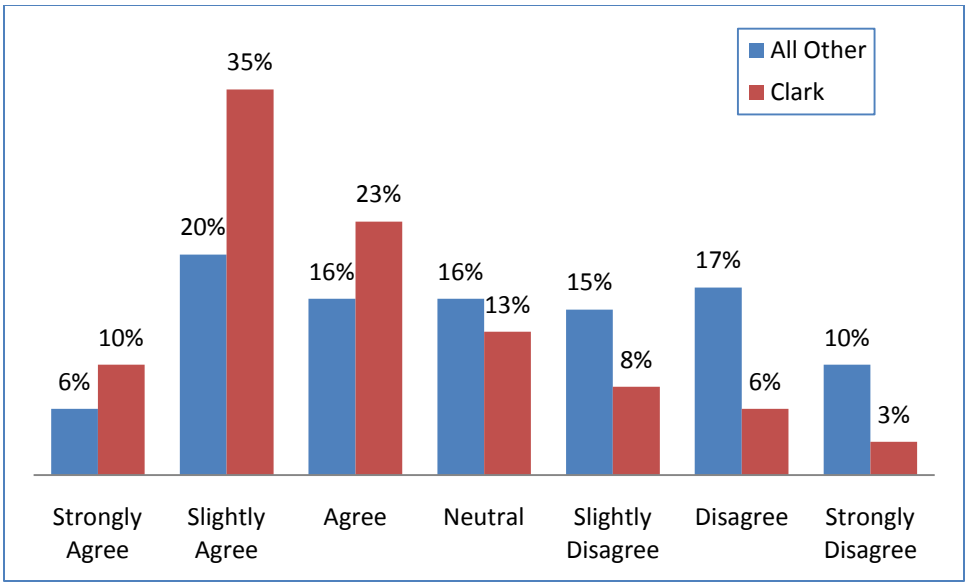

Figure 14 Comparison between Clark County and All Other Districts: "Time Required to Get Technical Assistance is Minimal."

Among respondents outside of Clark County, 41% strongly agreed or slightly agreed that there was an adequate system for technical assistance and 44% strongly disagreed or slightly disagreed. Fifty three percent of the Clark County teachers who responded to the survey question strongly agreed or slightly agreed that there was an adequate system for technical support and 32% strongly disagreed, disagreed or slightly disagreed that the system was minimal. Overall, Clark County teachers felt that the system for technical support met their needs (Figure 15).

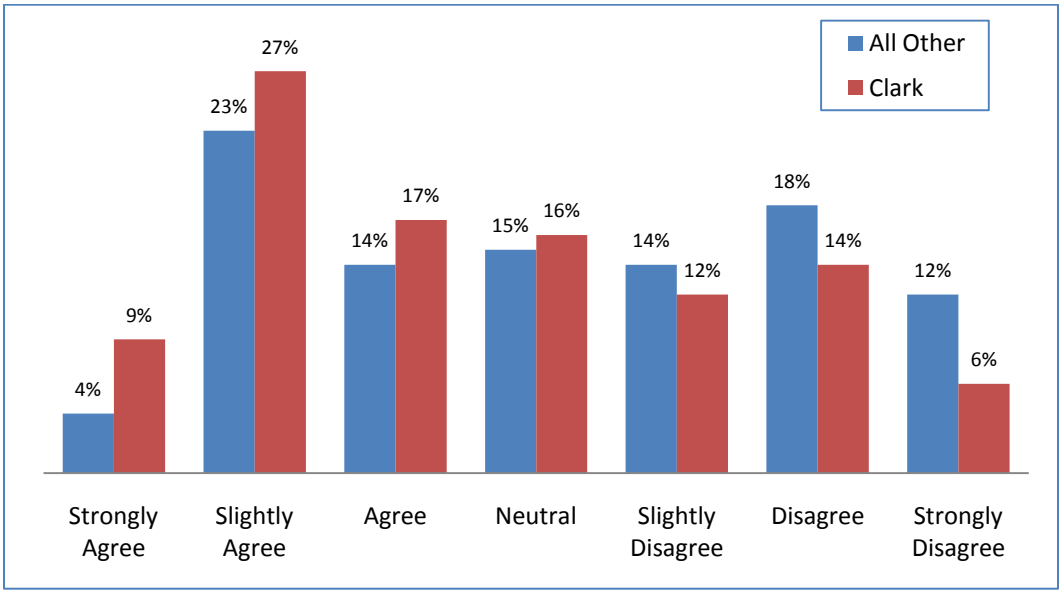

Figure 15 Comparison of Clark County teachers and teachers from all other districts of the teacher ratings to "What is your level of agreement with the current system for technical support."

Frequency of Technology use:

Of the 1,912 respondents, 36% stated that in the most recent 60 minutes of class time their students had used computers for instructional purposes, and 64% stated they did not (Figure 16). If the teachers answered yes, the next question addressed how many of their students used computers. Of the respondents to this follow-up question, 30% stated that one student used a computer and 18% stated that two students used computers (Figure 17).

When asked to provide the five most recent computer applications or Websites used by their students during class time, the five applications or Websites most frequently identified by Nevada educators were Microsoft Office (which includes Microsoft Word, Excel, PowerPoint, Publisher and Access), Accelerated Reading and Math, Google, Study Island, and United Streaming. According to the responses provided, 40% of respondents reported student use of Microsoft Office, 25% reported student use of Google, 8% reported student use of Accelerated Reading and Math programs, 6% reported student use of Study Island, and 3% reported student use of United Streaming. Other frequently reported computer applications used by Nevada students included Adobe Photoshop, Ticket to Read, and Smart Board software. In addition to computer applications, other frequently reported Websites used by Nevada students included Cool Math for Kids, Wikipedia, and YouTube.

Teachers were also asked to provide the five most recent computer applications or Websites that they frequently use in the classroom. The five applications and Websites most frequently identified by educators for their own use included Microsoft Office, United Streaming, Accelerated Reading and Math, Google, and district-distributed software provided for student attendance and grade reporting. Examples of this software include First Class and Power School (attendance recording software) and Easy Grade Pro and Power Teacher (grade book software). According to the responses provided, 57% of teachers reported using Microsoft Office, 24% of teachers reported using attendance and grade book software, 21% of teachers reported using Google, 5% of teachers reported using United Streaming, and 4% of teachers reported using Accelerated Reading and Math software. In addition to the computer applications listed above, teachers also reported the frequent use of Adobe Photoshop and Groupwise. Other frequently reported Websites included Study Island, Promethean Planet, and the Northwest Evaluation Association Website.

In this survey, Nevada educators were also asked to report on student computer use within the most recent last hour of class time and were asked to provide the number of students in their classroom that engage in computer use within the last hour of class time. Figure 16 presents the results of student computer use within the most recent last hour of class time and Figure 17 presents the data collected regarding the number of students that use computers within the most recent last hour of class time. According to Figure 16, teacher responses suggest that 64% of Nevada students did not use a computer during the last hour of class they attended. In addition, Figure 17 suggests that even if students are using computers during the last hour of class, the number of students engaging in computer-based activities is relatively low.

The results presented in Figures 16 and 17 suggest that student computer use during the last hour of class time is infrequent, but when asked about technology use in the classroom, a large majority of the teachers surveyed provided explanations as to why computer use among their students is lower than expected. For example, many of the teachers surveyed responded that access to computers for each student in their classroom is difficult to obtain. A large majority of teachers stated that access to the school computer lab or laptop cart needs to be reserved weeks or months ahead of time, which hinders their ability to encourage student computer use during class time. In addition to issues with access, many of the teachers surveyed reported a lack of classroom computer use due to inadequate equipment and outdated software. Many teachers stated that while they would like to increase technology use in their classrooms, a lack of current technology, access to technology, and knowledge of how to utilize the technology provided to them causes many teachers to abstain from using technology in their classrooms. This, in turn, decreases the opportunities presented to Nevada students to use technology during class time.

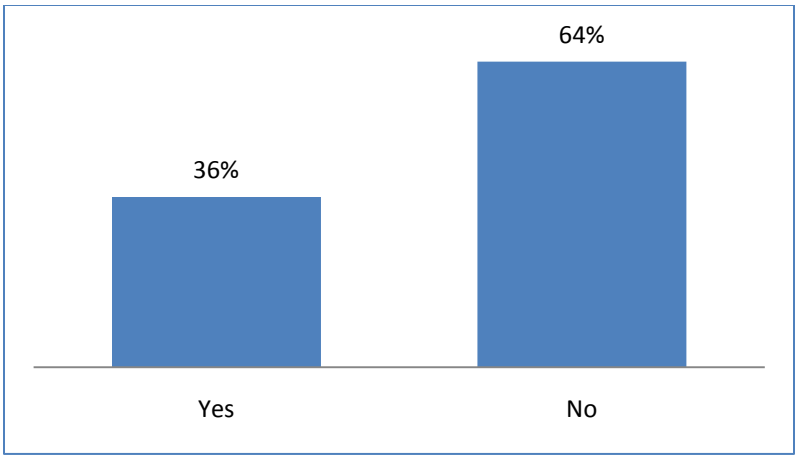

Figure 16 Responses to "Of the most recent 60 minutes of Class Time, Did Students use the Computer for Instructional Purposes?"

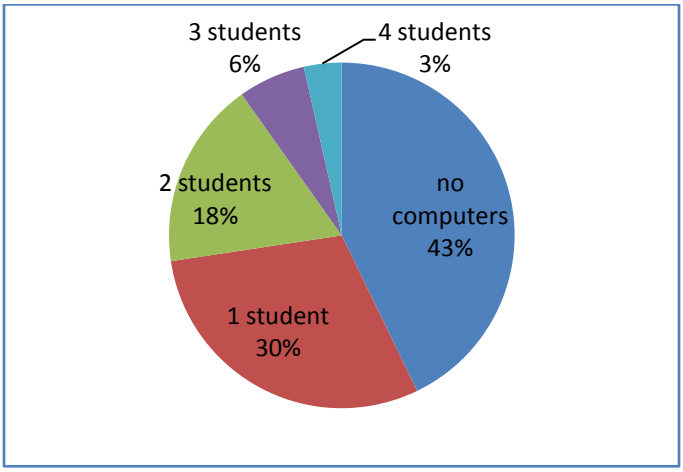

Figure 17 Responses to "During the most recent 60 minutes of classroom time, the number of Students that used computers."

When asked how many times computers were used in the classroom this academic year, 21% stated never, 31% stated 1-10 days, and 21% stated 80 or more days (Figure 18).

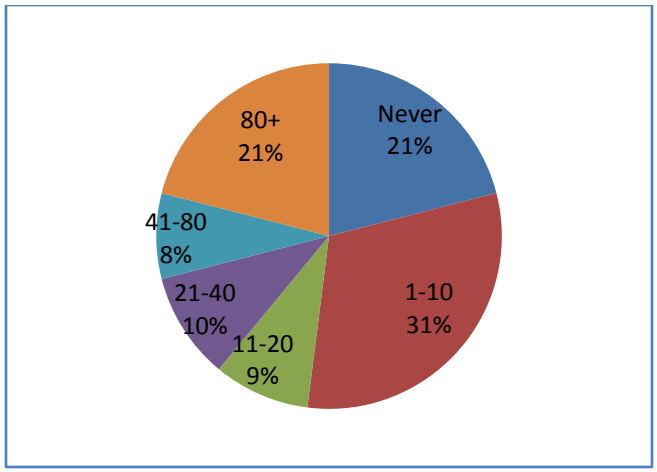

Figure 18 Responses to "How many days since the beginning of school has a typical student used a computer for instructional purposes?"

Preparation and Professional Development

Technology Coordinator Responses

In the surveys, Technology Coordinators were asked to provide feedback regarding the professional development opportunities provided for teachers in their district. A large majority of coordinators stated that while professional development may be offered, technology-focused professional development is very limited. Sources for technology professional development mentioned by coordinators included Website tutorials, Regional Professional Development Programs (RPDP) training, e-learning conferences, and classes taught at local colleges or universities. One coordinator discussed a district technology trainer that provides onsite training for teachers within the district and offers online support for teachers that may be struggling with technology use in their classrooms. Overall, the Technology Coordinators surveyed reported that professional development opportunities addressing technology use in the classroom are minimal.

When asked to describe the key components of effective professional development, many Technology Coordinators indicated that effective training would be timely, continuous, and relevant to current uses of technology in the classroom. For example, many coordinators stressed that due to teaching and testing demands, educators have very little time to devote to technology training. In addition, many coordinators stated that if training is going to be made available, it needs to be relevant to the types of technology that are available to the teachers within that district. A few coordinators also noted that

effective professional development should be tailored in such a way that all levels of technology proficiency are addressed.

After describing the characteristics of effective professional development, Technology Coordinators were asked to describe the key components to the professional development opportunities that are currently being provided to the teachers in their districts. A few coordinators stated that two-minute Web tutorials are currently being offered to teachers in their districts. It was noted that professional development opportunities in some districts are voluntary. Coordinators noted that the voluntary aspect of professional development makes it hard to provide educators with consistent training.

In regard to technology-based professional development, one coordinator stated that student technology literacy often now surpasses that of teachers, although those students are often not able to use the technology effectively to learn. Therefore, technology training for teachers needs to be current and consistent. It was also noted that in order to ensure that technology training is current among teachers, it is imperative that the technology provided within the classroom is current as well.

Preparation

The following questions were asked in regard to classroom availability of classroom technology; data retrieval; and access to district, classroom, and instructional materials via computer. Improvement has been made in several areas when compared to the 2008 STNA report (Table 5).

Table 5 Teacher Preparation in Comparison to 2008

Task	Percentage responding either *Moderately well* or *Very well prepared*	2008
Teach in a classroom where every student had their own laptop	75.5%	42%
Access and use state assessment data to support instructional decisions	73%	*Not Reported*
Access and use district assessment data to support instructional decisions	71%	*Not Reported*
Teach in a classroom where all of the instructional materials are delivered via the computer	54%	39%
Find effective instructional materials on the Internet	88%	74%
Integrate educational technology into your classroom	77%	62%
Incorporate library databases into student research projects	58%	41%

Professional Development

Teachers were asked about their professional development training, and responses show that most is provided by colleagues and in-service trainings. There is a small improvement in availability from the previous reporting period (Table 6). When asked about their technology professional development from other entities such as district, higher education institutions, RPDP, or school, responses were mostly neutral (Figures 19, 20, 21, 22, and 23).

Table 6 Professional Development Opportunities Compared to 2008

Professional Development Opportunities available to you during the current school year	2010	2008
One-on-one training from a technology specialist	28%	26%
Informal training from colleagues	67%	52%
In-service training related to technology	60%	56%
Online professional development courses	36%	33%

Teachers were asked to rate the quality of professional development opportunities that were offered by their school, local higher education institutions, RPDP, and their schools (Figure 19). Twenty-nine percent felt that their district offered very low or moderately low quality opportunities and 40% indicated that the quality of their districts' professional development opportunities were very high or moderately high (Figure 19 and 20). Twenty-eight percent of teachers felt that the local higher education institutions provided very low or moderately low quality professional development and 21% indicated that the opportunities were very high or moderately high in quality (Figure 19 and 21). When asked about the RPDP, 26% rated it as very low or moderately low quality and 29% said the quality rated moderately high or very high (Figure 19 and 22). Finally, when asked about their school sites, 31% rated the quality of professional development low or moderately low and 37% rated it very high or moderately high (Figure 19 and 23). In general the ratings from the teachers in regard to professional development quality were moderately high or very high.

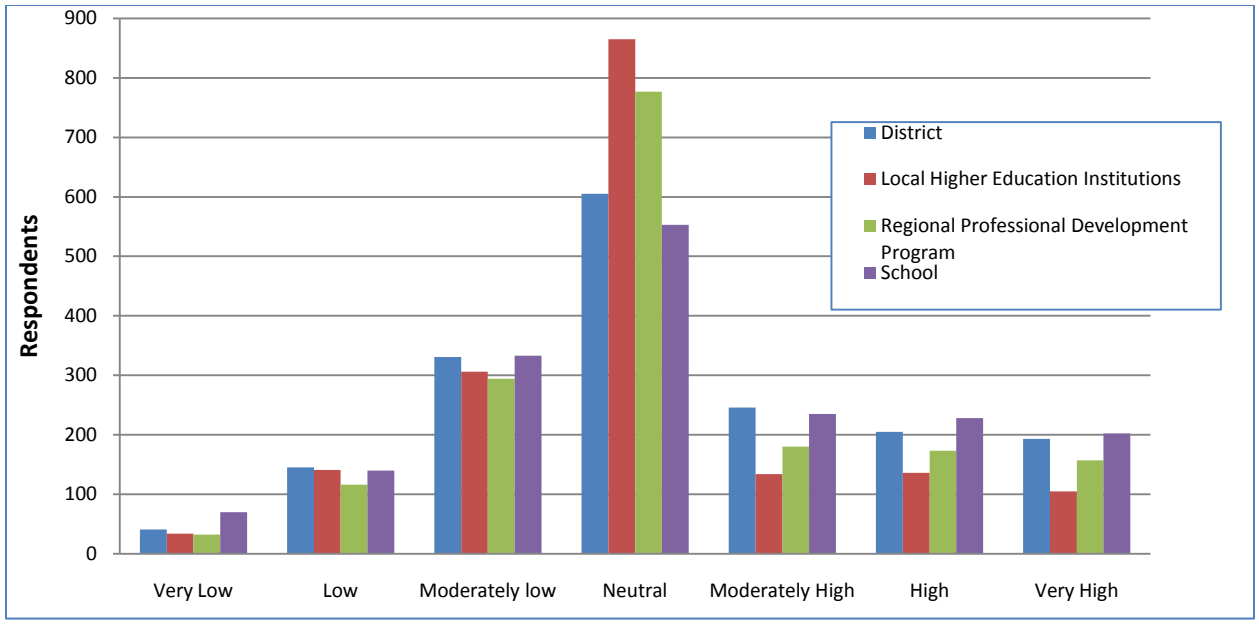

Figure 19 Responses to "How would you rate the quality of the technology related professional development opportunities offered by the following entities?"

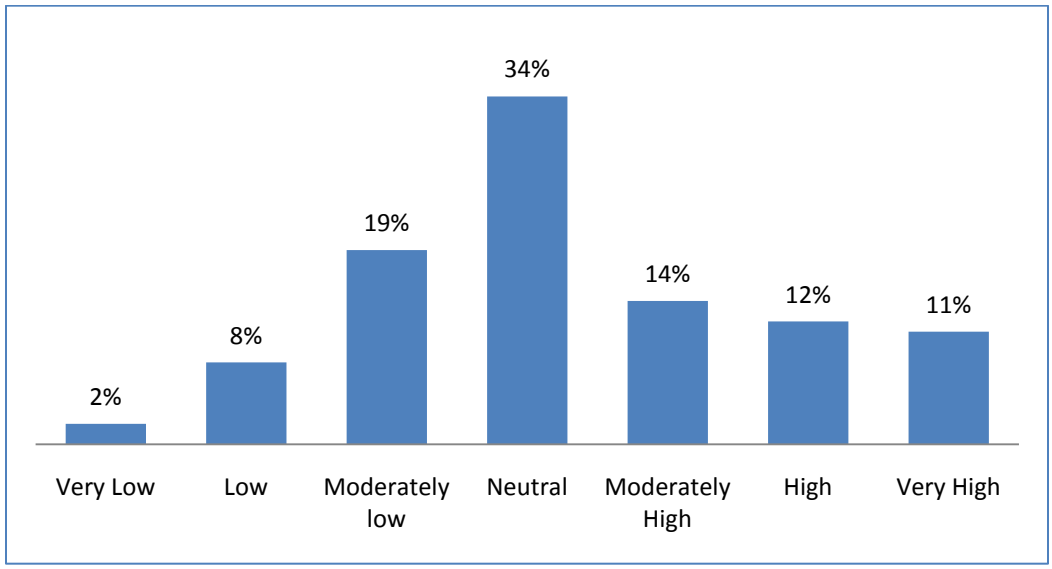

Figure 20 Responses to "Quality of Professional Development-District"

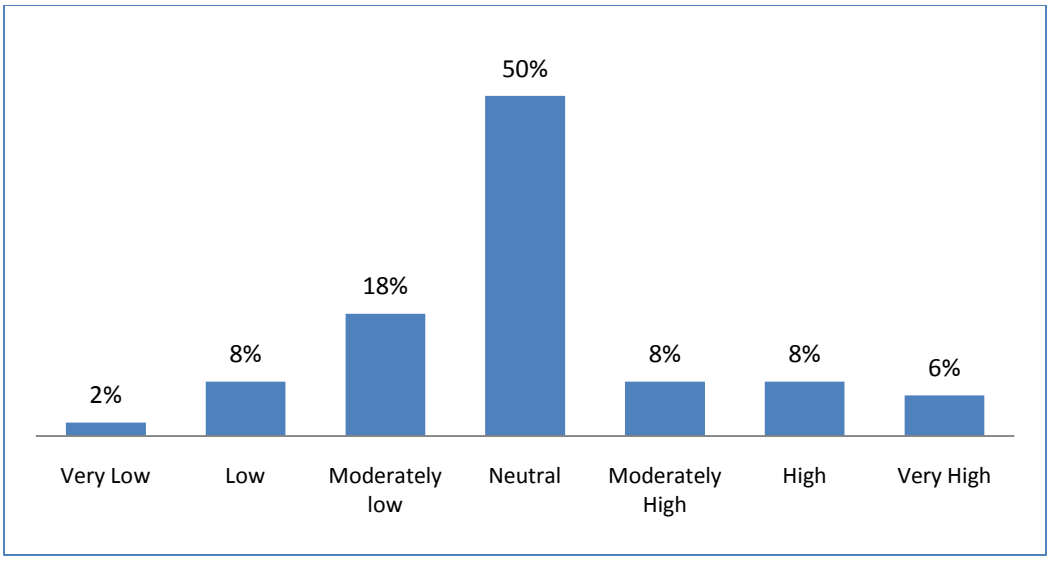

Figure 21 Responses to "Quality of Professional Development-Higher Education Institutions"

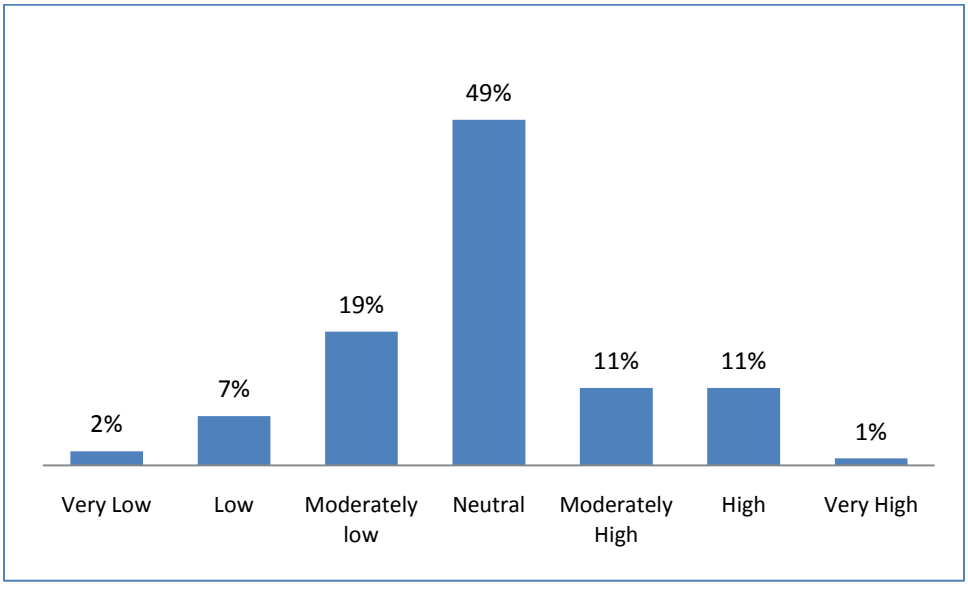

Figure 22 "Responses to "Quality of Professional Development-RPDP"

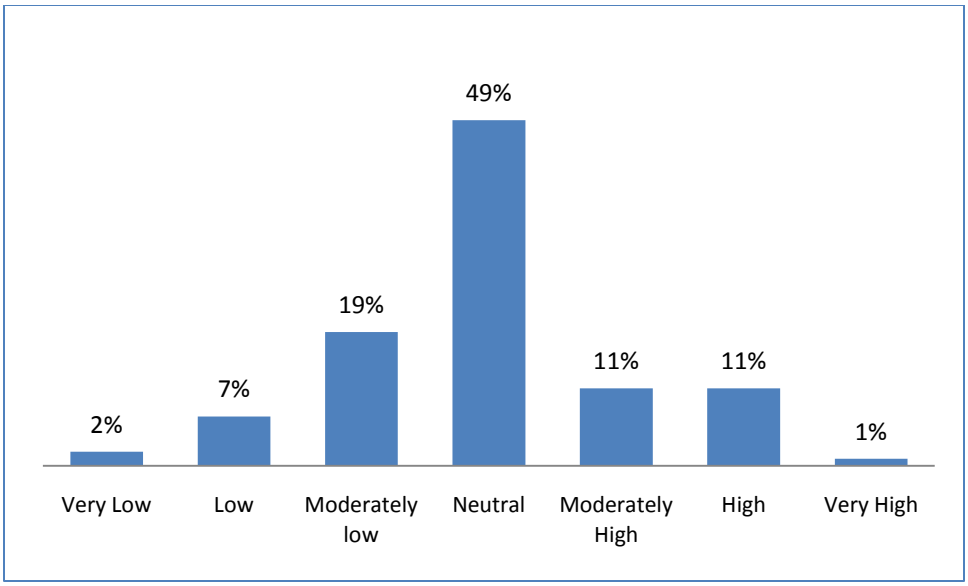

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Figure 23 Responses to "Quality of Professional Development-School Site"

The following figures represent the teachers' opinions of their professional development opportunities in different sized districts: small, medium, and large. Most of the responses fall in the neutral category in all districts represented. Eureka County School District teachers have mostly neutral responses. Twenty-three percent of the teachers felt that the district provided high or moderately high professional development, but 38% also felt that the quality of those opportunities was low or moderately low. Twenty-three percent of the reporting teachers felt that the quality of professional development offered by higher education institutions was very low, and 61% felt that training by the RPDP was moderately low or very low in quality. In their own schools, 15% thought that they got high-quality professional development, but 38% believed it was low or very low in quality. The teachers felt that overall the quality of professional development available to them was low (Figure 24).

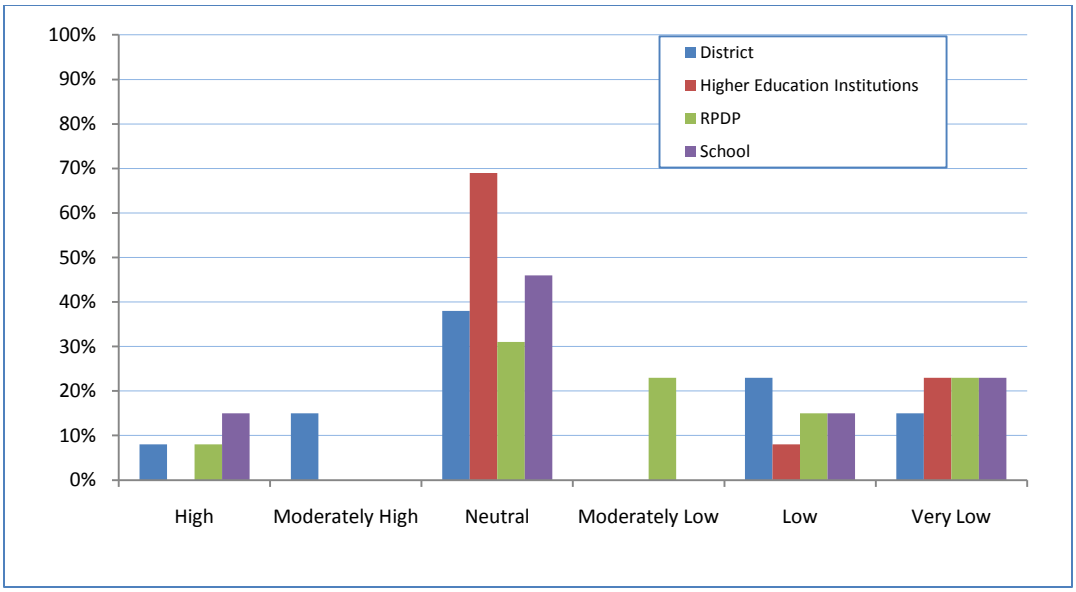

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Figure 24 Eureka County School District responses to "Quality of the technology related professional development opportunities offered."

Lyon County School District was evenly split with 3% stating the district opportunities were very high or moderately high and 74% stating the opportunities were moderately low or very low. The higher education opportunities rated a 17% rating it high or moderately high and 38% moderately low or very low. RPDP opportunities were rated as 4% moderately high and 42% as moderately low or very low. When teachers were asked to rate professional development opportunities from their school site, 15% rated them as high or moderately high and 53% rated them moderately low or very low (Figure 25).

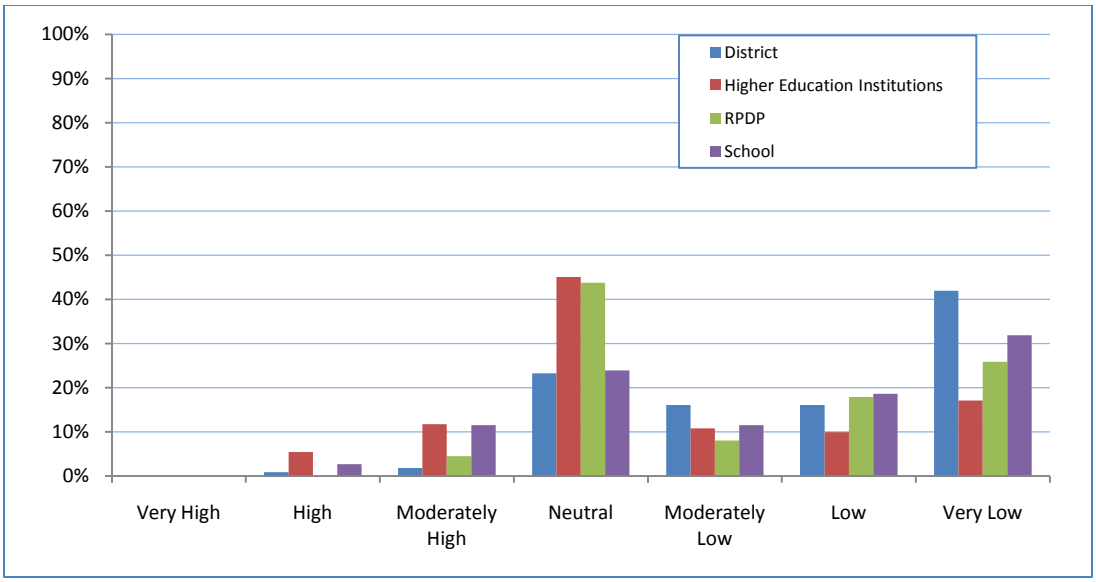

Figure 25 Lyon County School District responses to "Quality of the technology related professional development opportunities offered."

Of the Carson City School District teachers who responded to the survey, 40% thought the district provided very high or moderately high quality professional development opportunities and 35% believed the opportunities were moderately low or very low in quality. Twenty percent indicated that professional development opportunities provided by higher education were very high or moderately high quality and 22% believed the quality was moderately low or very low. Nine percent indicated that quality of professional development provided by the RPDP was very high or moderately high and 47% rated it as moderately low or very low in quality. When asked about the opportunities provided at their school site, 43% felt that the quality was very high or moderately high and 37% rated them moderately low or very low. Carson City School District teachers felt that professional development opportunities provided by the district and their own schools were the most beneficial (Figure 26).

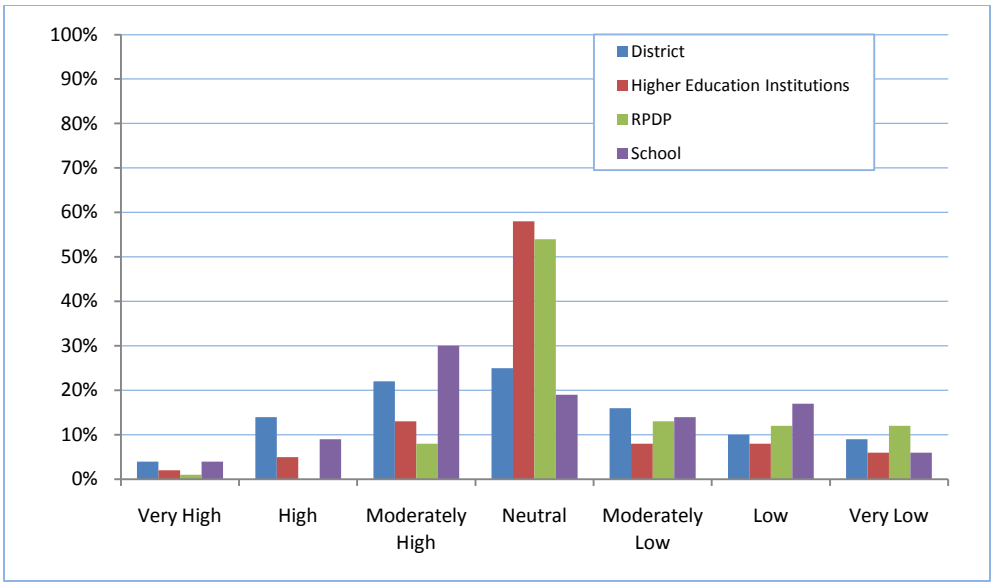

Figure 26 Carson City School District responses to "Quality of the technology related professional development opportunities offered."

Thirty-two percent rated Clark County School District's professional development as very high or moderately high quality and 27% moderately low or very low. When asked to rate the professional development quality from higher education, 34% rated it very high or moderately high and only 15% rated it moderately low or very low. Thirty-six percent of the teachers rated RPDP opportunities as very high or moderately high in quality and 18% as moderately low or very low. The teachers that responded to the survey felt 41% of the school-level professional development was very high or moderately high in quality and 27% rated it moderately low or very low. Clark County teachers responded favorably in all categories of professional development opportunities which is unique among the teachers reported here (Figure 27).

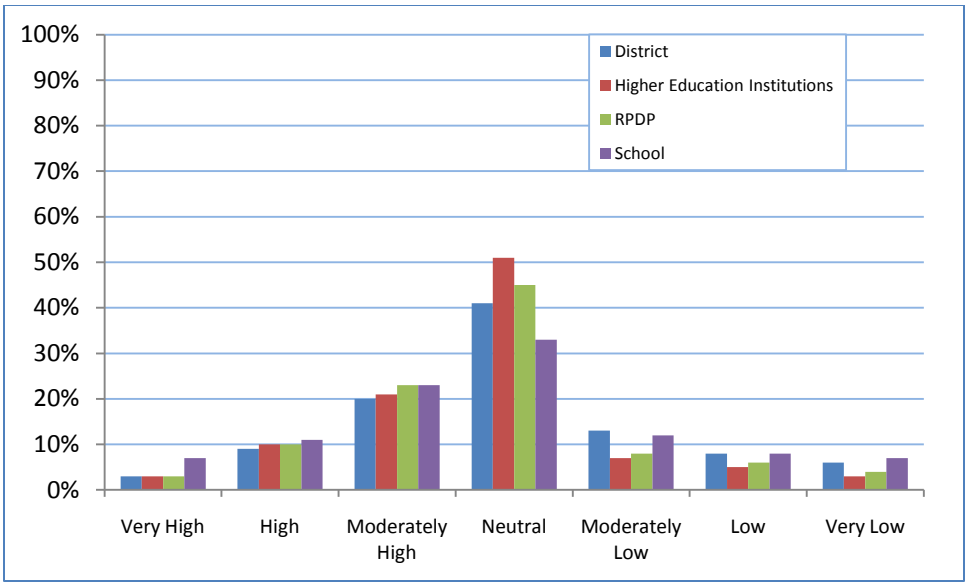

Figure 27 Lyon County School District responses to "Quality of the technology related professional development opportunities offered."

Parent Surveys

A survey was distributed to parents in each district in Nevada in order to obtain their feedback on technology use in schools and student technology use outside the classroom setting. A total of 915 parent surveys were completed from the following districts: Carson City, Churchill, Clark, Esmeralda, Eureka, Humboldt, Lincoln, Mineral, Nye, Washoe, and White Pine. Responses to the parent survey were not received from Douglas, Elko, Lander, Lyon, Pershing, or Storey Counties.

When asked about student technology use for homework purposes, a large majority of parents stated that their student engages in technology use for homework in numerous subjects, including mathematics, science, and language arts. Student use of the Internet as a research tool for various homework assignments was widely reported by the parents that responded. Student use of the Internet for online test-taking and class completion was also reported. Types of software technology used by students at home that were identified by the parents surveyed included Microsoft Office elements of Word, Excel, and PowerPoint. Many parents also reported that their students rely on the Internet for homework assignments, such as online educational games and assignments that require research. With that being said, a number of parents also stated that if homework assignments requiring the use of a computer are going to be given to students, school districts that are promoting such assignments should

be providing students with a portable or home-based computer. The parents that responded in this manner argued that it is unfair to assume that all students have home access to a computer and the Internet. Overall, a majority of parents stated that their student uses technology on a regular basis in order to complete homework assignments.

Parents were also asked to report on their student's use of technology in the classroom. A majority of the parents surveyed stated that their student uses technology in such subjects as science, language arts, mathematics, and computers. Specifically, student technology use was identified by parents by subject, including: Microsoft Excel use in mathematics courses, word processing software and the Internet for research and document writing purposes in science and language arts courses, and typing skills programs in computer classes. Parents of younger students reported the use of learning games by their students during class time, as well as the use of the computer to administer basic reading and math assessments. The use of presentation software, such as Microsoft PowerPoint, was also reported by the parents surveyed.

It was noted by some parents that in order for technology to be adequately taught, teachers and administrators need to be knowledgeable in technology as well. One parent expressed concern that teachers use technology in the classroom as a "babysitter" instead of teaching students about real-world technology applications. Also, parents expressed concern that they are unaware of the technology being taught to and used by their students, which hinders their ability to provide this technology at home. Many parents would like to bring technology education into the home, but cannot do so without knowing what types of technology are being taught by their student's teachers. Finally, when asked to identify their main concerns regarding their student's technology use in school, many parents identified the amount of time spent teaching technology in the classroom as their main concern. A large majority of parents also expressed concern regarding district Internet filters and the likelihood that students would be able to access inappropriate content on school-provided computers. Many of the parents surveyed, most notably parents from Clark County, reported a strong desire for strict Internet filters on school computers, as well as the need for regular monitoring of student computer use by administrators and teachers. Based on the responses collected, it is important to parents that students have adequate class time to learn technology, while ensuring that students are using technology properly and for educational purposes only.

The parents that were surveyed were also asked to identify their expectations regarding technology use in schools. An overwhelming majority of the parents surveyed stated that students need to be educated in and utilize technology on a regular basis. Many parents expressed concern that without technology education, students will be unsuccessful in a world that relies heavily on technology. Many of the parents surveyed stressed the need for districts to provide students with current technology, rather than using out-of-date machines to teach current uses of technology to students. A few of the technological expectations identified by the parents surveyed included basic computer use, basic typing skills, and knowledge of Internet capabilities. Many parents also stated that students should be knowledgeable in Microsoft Office software, which includes Word, Excel, and PowerPoint. Overall, many of the parents surveyed reported that their technology expectations are currently being met by the schools within their district. One Clark County parent summed up the sentiments of most parents across Nevada: “The world [our children] are living in is not the same as 5 years ago or even 10 years ago. In Nevada, we are behind the times. Technology is the new age and we need to get into the 21st century. “

Appendices

Appendix A- Letters to Superintendents, IT Coordinators, Principals, Teachers, Parents

Superintendent Letter

Dear Superintendent,

The Raggio Research Center, University of Nevada, Reno will be conducting the legislatively mandated State Technology Needs Assessment Survey (STNA). This electronic survey will be sent to the designated IT Coordinator in each school district, as well as to samples of teachers, administrators and parents. The introduction letter will provide a link to Survey Monkey where the individuals will be invited to take the survey.

We will be using the same sampling guidelines as were used for the 2008 STNA. For districts with fewer than 1000 students, all of the classroom teachers will be surveyed. In districts with student populations between 1000 and 10,000 students, we will be surveying 100 teachers each from elementary, middle school/junior high and high schools (total 300 individuals). Districts greater than 10,000 students, 20% of the teacher workforce will be randomly surveyed.

A piece of the previous survey that was missing was parent surveys. This part of data collection is challenging at best. We will be sending letters to each school principal informing them of the surveys, and asking them to distribute them in the most efficient way possible for their school site. They may have a school wide parent notification system, teachers who use regular parent letter emails, a school event such as parent teacher meetings, fundraisers or spirit days. For these events, perhaps a community computer could be made available for parents to complete the 7 question survey. Principals may have email lists of club, sport or band parents that could request the completion of the

surveys with the appropriate links. We will also be contacting the Nevada State PTA for dispersal of the information.

In total we will be contacting the IT Coordinators for 17 districts, 7000 teachers and as many parents as can be contacted in the possible ways explained above. It would seem that this data would represent a good picture of the technology needs and uses in Nevada from many perspectives.

We greatly appreciate your help in supporting your principals, teachers and It Coordinators in completing this critical survey.

Thank you in advance for your support. Please feel free to contact us with any questions.

Respectfully,

Jacque Ewing-Taylor, Projects Director

and

Laurie McKinnon, Projects Coordinator

IT Coordinator Letter

Dear IT Coordinator,

The Raggio Research Center, University of Nevada, Reno will be conducting the legislatively mandated State Technology Needs Assessment Survey (STNA).

We will be using the same sampling guidelines as were used for the 2008 STNA. For districts with fewer than 1000 students, all of the classroom teachers will be surveyed. In districts with student populations between 1000 and 10,000 students, we will be surveying 100 teachers each from elementary, middle school/junior high and high schools (total 300 individuals). Districts greater than 10,000 students, 20% of the teacher workforce will be randomly surveyed.

A piece of the previous survey that was missing was parent surveys. This part of data collection is challenging at best. We will be sending letters to each school principal informing them of the surveys, and asking them to distribute them in the most efficient way possible for their school site. They may have a school wide parent notification system, teachers who use regular parent letter emails, a school event such as parent teacher meetings, fundraisers or spirit days. For these events, perhaps a community computer could be made available for parents to complete the 7 question survey. Principals may have email lists of club, sport or band parents that could request the completion of the surveys with the appropriate links. We will also be contacting the Nevada State PTA for dispersal of the information

In total we will be contacting the IT Coordinators for 17 districts, 7000 teachers and as many parents as can be contacted in the possible ways explained above. It would seem that this data would represent a good picture of the technology needs and uses in Nevada from many perspectives.

As the designated IT Coordinator in your district, please go to the following link and complete the survey:

https://www.surveymonkey.com/s/J777DTJ

Also attached are the Superintendant, Principal and Teacher Letters we sent out this week.

Thank you in advance for your support. Please feel free to contact us with any questions.

Respectfully,

Jacque Ewing-Taylor, Projects Director

and

Laurie McKinnon , Projects Coordinator

Principal Letter

Dear Principal,

The Raggio Research Center, University of Nevada, Reno will be conducting the legislatively mandated State Technology Needs Assessment Survey (STNA). This electronic survey will be sent to the designated IT Coordinator in each school district, as well as to your school staff, teachers and parents. The letter provides a link to a site Survey Monkey where your parents can be invited to take the survey.

We will also be using the sampling guidelines from the 2008 STNA. For districts with fewer than 1000 students, all of the classroom teachers will be surveyed. In districts with student populations between 1000 and 10,000 students, we will be surveying 100 teachers each from elementary, middle school/junior high and high schools (total 300 individuals). In districts greater than 10,000 students, 20% of the teacher workforce will be randomly surveyed.

We will be emailing the survey letters to your certificated faculty. We have obtained their email addresses from your school Websites. If a faculty member determines that they did not receive an invitation to complete the survey PLEASE give them the link below. .

A piece of the 2008 survey that was missing was surveying parents. This part of data collection is challenging at best. We are asking you to distribute the parent survey request letters the most efficient way for you. You may have a school wide parent notification system, teachers that have regular parent letter emails, a school event such as parent teacher meetings, fundraisers or spirit days. For these events, perhaps a community computer could be made available for parents to complete the 7 question survey. You may have email lists of club, sport or band parents that you could request the completion of

the surveys by forwarding the attached letter with the survey links. Our goal is to get feedback from as many of your parents as possible in order to get an accurate perspective.

In total we will be contacting the IT individuals for 17 districts, 7000 teachers and as many parents that can be contacted in the possible ways explained above. These data will hopefully represent a good picture of the technology needs and uses in Nevada from many perspectives. We **greatly** appreciate your help!

Here is the link to the parent letter and Survey: 2010 NDE Technology Needs Assessment - Parent Survey (Douglas)

Please have your parents respond no later than **March 15, 2010**.

Teacher Survey Monkey Link: 2010 NDE Technology Needs Assessment - Teacher Survey (Douglas)

Please have your teachers respond no later than **March 15, 2010**.

Thank you in advance for your support.

Respectfully,

Jacque Ewing-Taylor, Projects Director

and

Laurie McKinnon, Project Coordinator

Teacher Letter

Dear Teacher,

The Raggio Research Center, University of Nevada, Reno will be conducting the legislatively mandated State Technology Needs Assessment Survey (STNA).

We ask that you go to the following link and take the teacher survey https://www.surveymonkey.com/s/BL8ZR8C.

This survey will provide important feedback for the Nevada State Legislature. The results will be tabulated on a district wide basis. If one of your colleagues has not received this email, please feel free to pass it along to them.

In total we will be contacting the IT individuals for 17 districts, 7000 teachers and parents. We are asking your principal to determine the best way to distribute the parent surveys. If you have a classroom email letter, a school wide activity or another idea to contact as many parents as possible, please talk to your principal. We believe this survey will represent a good picture of the technology needs and uses in Nevada from many perspectives.

We greatly appreciate your assistance in completing the survey. We realize that you are incredibly busy and thank you for your time and support. Please feel free to contact us with any questions.

Respectfully,

Jacque Ewing-Taylor, Projects Director

and

Laurie McKinnon, Project Coordinator

Parent Letter

1.

23 February 2010

Dear Parents,

The Raggio Research Center, University of Nevada, Reno will be conducting the legislatively mandated State Technology Needs Assessment Survey (STNA). This electronic survey will be sent to a sample of teachers and parents along with the designated IT Coordinators in each school district.

We ask that you complete the following 7 question parent survey. Your responses are extremely important as the information you provide will be included in the report to Nevada State Legislature.

We greatly appreciate your time to complete this survey.

Please click on "next", at the bottom of this page, to complete the survey.

Thank you for your support.

Respectfully,
Jacque Ewing-Taylor
Projects Director

Laurie McKinnon
Project Coordinator
(775) 784-7786

Appendix B- Technology Coordinator Survey

1. Section One

1. Describe the role of the current STATE educational technology plan in the design, delivery and planning of the educational technology in your district.

2. Describe the role of the current DISTRICT educational technology plan in the design, delivery and planning of educational technology in your district.

3. Do the schools in your district typically engage in significant technology planning? If so, how does this occur? Do they have school technology plans? Do they have technology committees?

4. Describe the status of PLANNING for technology in your district. What are the major challenges?

5. Describe in general terms the FUNDING for technology in your district. What are the major sources of funding? Is the funding consistent and predictable?

6. What other comments do you have regarding technology planning in your district?

7. What do you think the opportunities and challenges associated with increasing the use of computer-based assessments are in your district?

8. What do you think are the opportunities and challenges associated with the expanded use of laptops to supplement and in some instances replace textbooks?

9. Would the expanded distribution of laptop computers have a positive impact on student outcomes? Why or why not?

10. What are some of the more advanced ways teachers in your district are utilizing the Internet to improve student outcomes?

11. What are some of the greatest challenges associated with the increased use of the Internet for teachers in your district?

12. Are teachers in your district using the Internet to collaborate with other teachers in your district? If yes, how?

13. What are some of the most important ways teachers can utilize the web to support teaching?

14. What other comments do you have regarding the role of technologies in your district classrooms?

In the following three text boxes, describe three relatively common classrooms that a visitor might see in your district. The three classrooms should represent your view of the low, middle and top in terms of technology availability in your district. In your description include the approximate number, age and condition of the computers in the room, the presence or absence of a projector, the Internet connection capacity and any other technologies that might be available.

15. Common low-end classroom

16. Common middle classroom

17. Common high-end classroom

18. Next to each of the designations below, provide a number that represents the approximate percentage of classrooms that closely fit the description:

Low-end classroom

Middle classroom

High-end classroom

19. What role does open source software such as OpenOffice, Apache or Firefox have in your district's technology plan?

20. What support is available to teachers when they need technical assistance in their classrooms?

21. What other comments do you have regarding the technology capacity in your district's classrooms?

22. What type of professional development is available to teachers in your district?

23. Describe what you believe are the key components to effective professional development.

24. How do these key components compare to the professional development opportunities you are able to provide to teachers?

25. Is there anything else you would like to share before completing this survey?

Appendix C– Teacher Survey

1. Section One

1. In my classroom, I have a computer that I can use for administrative tasks (e.g. attendance, lesson planning).

- ○ Yes
- ○ No

2. In general, I find this computer easy to use.

- ○ Strongly agree
- ○ Agree
- ○ Neither agree nor disagree
- ○ Disagree
- ○ Strongly disagree

3. How old is this computer?

4. In my classroom, I have at least one computer that students can use for instructional purposes.

- ○ Yes
- ○ No

5. What is the average age of the computer(s) the students use?

6. What is the ratio of students to computers during a typical class?

7. How many computers do you have in your classroom (do not include the computer you use for administrative tasks)?

8. In general, these computers are easy to use.

- ○ Strongly agree
- ○ Agree
- ○ Neither agree nor disagree
- ○ Disagree
- ○ Strongly disagree

9. The computer(s) in my classroom have Internet access.

- Yes
- No

10. The connection speed for classroom computers is such that typical online videos will begin playing:

- Very quickly
- Quickly
- Neither quickly nor slowly
- Slowly
- Very slowly

11. The LCD projector is easy to setup.

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

12. What comments do you have regarding the technology capacity in your classroom?

13. Please indicate how well prepared you feel you are to accomplish the following:

	Very well prepared	Well prepared	Not prepared	Not at all prepared	N/A
Teach in a classroom where every student has their own laptop computer.					
Access and use state assessment data (e.g., CRT scores) to support instructional decisions.					
Access and use district assessment data (e.g., for Clark, IDMS) to support instructional decisions.					
Teach in a classroom where all of the instructional materials are delivered via the computer.					
Find effective instructional materials on the Internet.					
Integrate educational technology into your classroom.					
Incorporate library databases into student research projects.					

14. Which of the following professional development opportunities have been available to you during the current school year?

- [ ] One-on-one training from a technology specialist
- [ ] Informal training from colleagues
- [ ] Inservice training related to technology
- [ ] Online professional development courses

For the next group of questions, please estimate the number of hours you have participated in available technology professional development activities during the current school year.

15. One on one training from a technical specialist

16. Informal training from colleagues

17. In-service training related to technology

18. Online professional development courses

19. One on one training from a technology specialist

20. How would you rate the quality of the technology related professional development opportunities offered by the following entities?

	Very low	Low	Moderately low	Neutral	Moderately high	High	Very high
District	○	○	○	○	○	○	○
Local higher education institutions	○	○	○	○	○	○	○
Regional Professional Development Program	○	○	○	○	○	○	○
School	○	○	○	○	○	○	○

21. What comments do you have regarding your preparation and professional development opportunities?

22. Please rate your agreement with the following statements as they relate to your technology professional development opportunities.

	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree	N/A
They are appropriate for content I am expected to teach.	○	○	○	○	○	○
The activities focus on general integration strategies.	○	○	○	○	○	○
They are appropriate for the grade level of my students.	○	○	○	○	○	○
They generally provide me with the opportunities to try what I have learned.	○	○	○	○	○	○
The activities are ongoing.	○	○	○	○	○	○
They are best described as 'one-shot' presentations.	○	○	○	○	○	○
The different activities are a part of a larger related plan.	○	○	○	○	○	○
They provide opportunities to work with other teachers in my content area.	○	○	○	○	○	○
Activities are frequently targeted to specific strategy or method.	○	○	○	○	○	○
The activities are directed towards the needs of my grade level.	○	○	○	○	○	○
The activities are directed towards the needs of my school.	○	○	○	○	○	○

23. Indicate whether or not the following are true as they relate to your most recent 60 minutes of classroom time:

	Yes	No
I used a computer for instructional purposes.	○	○
I used the Internet for instructional purposes.	○	○

24. List the five most recent computer applications or web sites that your students have used in your class:

1. _____
2. _____
3. _____
4. _____
5. _____

25. List the five most recent computer applications or web sites that you used in your class:

1.
2.
3.
4.
5.

26. On how many days since the beginning of the school year has a typical student in this particular class (the one you last taught) used a computer for instructional purposes?

27. Typically, how many students operate any one computer at one time during this class?

28. What comments do you have regarding your use of technology?

29. During your most recent 60 minutes of classroom time, students used a computer for instructional purposes:

- ○ Yes
- ○ No

30. If yes, how many students used computers?

31. Which of the following technologies do you have in your classroom all the time:

Please do not include items you can check out or get from other places.

- ☐ Digital camera
- ☐ Digital video camera
- ☐ An LCD projector
- ☐ A device that allows me to project my computer screen on a TV
- ☐ An interactive whiteboard (e.g., SmartBoard or Promethean)

32. Please rate your level of agreement with the following statements:

	Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly agree	Agree	Strongly Agree
The system in place for technical support is adequate.	○	○	○	○	○	○	○
The time required to get technical assistance is minimal.	○	○	○	○	○	○	○
The computers in my classroom are in good working condition.	○	○	○	○	○	○	○
I can manage the majority of the technical issues that arise with my classroom computers.	○	○	○	○	○	○	○
The Internet connection in my classroom is dependable.	○	○	○	○	○	○	○
I can access the web site I need for instruction.	○	○	○	○	○	○	○

33. Through a sign up or check out procedure, I can arrange to have the following technologies available for a finite time in my classroom:

	Yes	No
A video camera	○	○
A digital camera	○	○
An interactive whiteboard (e.g., SmartBoard or Promethean)	○	○
An LCD projector	○	○
A classroom set of laptop computers	○	○
A set of laptop computers that permits group work (i.e., one computer per group of 3-5 students)	○	○

34. I believe the Internet filter used at my school is:

- ○ Too restrictive
- ○ About right
- ○ Not restrictive enough

35. Rate the ease of accomplishing the following tasks from your classroom computer:

	Very Easy	Easy	Somewhat Easy	Not at all Easy
Checking my school email account via the Web browser.	○	○	○	○
Printing and copying documents.	○	○	○	○
Accessing storage space on the school network.	○	○	○	○
Students accessing storage space on the school network.	○	○	○	○
Printing documents.	○	○	○	○
Reviewing standardized assessment results for my students.	○	○	○	○
Updating grades with our gradebook software.	○	○	○	○
Using technology to collaborate with other teachers on the development of instructional materials.	○	○	○	○

36. Do you regularly plan lessons with other teachers who teach the same level or content area?

- ○ Yes
- ○ No

37. In what ways do you coordinate this work?

- ☐ Using web-based tools that permit document sharing (e.g., Google Docs)
- ☐ Using shared space on the school network
- ☐ Emailing files
- ☐ Printing and copying documents

38. Do you have access via the Internet to the following materials?

	Yes	No
District content objectives	○	○
Lessons developed by other district teachers	○	○
District curriculum materials	○	○
Videos related to the curriculum	○	○

39. What comments do you have regarding the technology capacity in your school?

Appendix D- Parent Survey

2. Section One

1. What school district is your student currently enrolled in?

2. What grade is your child currently enrolled in? If you have multiple children in school, please select all applicable levels.

3. Does your student regularly use technology to complete HOMEWORK? If so, what types of activities do they complete?

4. Does your student use technology regularly IN SCHOOL? If so, what types of activities do they complete?

5. What are your expectations regarding technology use in schools? Are these expectations being met?

6. What other comments do you have regarding the use of technology in your student's school?

7. What are your concerns regarding your student's use of technology in school?

Appendix E – IT Coordinators' Interview Protocol

Coordinator Interview: Name _____District _____

1. What is the current status of the district (or school) educational technology plan?

A. When was your **district** educational technology plan last updated?

B. What measurable goals were included and what, if any, data was collected?

C. How well aligned is your district plan with the state and national educational technology plans?

D. How well did the district plans support planning for technology integration?

E. How well did the district plans subsequently impact achievement?

2. In what ways can educational technologies improve instructional development, delivery, and assessment in your district and/or school?

A. Is your district using any computer based assessments at this time?

(Please describe)

1. What would your reaction be to the use of computer-based assessments for the high school proficiency exam (if applicable, or CRT's for elem. Coord.)

a. Advantages

b. Disadvantages

B. Is your district currently involved in any laptop initiatives (e.g., 1-1 or laptop carts)?

C. Is your district currently involved in any initiatives to replace traditional textbooks with electronic content?

D. Is your district currently involved in any initiatives to use of Web-based

collaborative technologies to support teachers' lesson planning?

3. Capacity of the district (or school) in Nevada

A. What is the probability that a classroom teacher in your district (or school) at any given moment will have in their classroom:

1. A computer that is less than five years old, internet connected, and currently in good working condition? Filtering?

2. A ratio of students to computers in the classroom that is less than 5 to 1

3. A projection device that permits all of the students in the classroom to view the computer display and requires minimal setup in terms of time and expertise

4. Access to timely, dependable and effective technical support?

B. What is the probability that a classroom teacher in your district (or school) will have on any given day:

1. Utilized technology to support the delivery of a lesson?

2. Asked students to utilize technology to complete and individual activity?

3. Asked students to utilize technology to complete an activity that requires students to engage in analytic or evaluative tasks.

C. What are the relationships between the access and use?

1. Is this a direct relationship or are their other factors?