Proposal to Conduct the 2008 Educational Technology Needs Assessment

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Purpose

The purpose of this proposal is to delineate a plan for conducting the 2008 Educational Technology Needs Assessment for Nevada schools and districts. The plan will be guided by the needs assessment requirements set forth in SB184.

Project Personnel

Kendall Hartley will serve as the project director. Dr. Hartley is an Associate Professor of Educational Technology at the University of Nevada, Las Vegas.

Gregg Schraw will consult on the study design, implementation and data analysis. Dr. Schraw is a UNLV professor with expertise in research methods, statistical analysis and evaluation.

Neal Strudler will consult on content related aspects of the project. Dr. Strudler is a UNLV professor who has been actively involved with the International Society for Technology in Education (ISTE) and participated in the development of the National Educational Technology Standards (NETS) for Teachers.

A more detailed biography of the project personnel is provided in Appendix B.

Research Questions

The research questions were developed to address the relevant portions of SB 184. Note that these descriptions are paraphrased, not verbatim.

1. The needs assessment should inform the state educational technology plan. (SB 184; Section 19.1d)
2. The needs assessment should consider the existing state and district educational technology plans (SB 184; Section 19.6a and 19.6b)
3. The need for computer-based assessments, including, without limitation, the use of computers for the administration of the high school proficiency examination. (SB 184; Section 27.1)
4. The integration of educational technology to improve the achievement and proficiency of pupils. (SB 184; Section 27.2)
5. The feasibility and costs associated with using laptop computers in lieu of traditional textbooks. (SB 184; Section 27.3)

In support of the requirements of SB 184, the following research questions are proposed:

1. *What is the current status of the state and district educational technology plans?*
   a. When were the state and district the plans last updated?
   b. What measurable goals were included and what, if any, data was collected?
   c. How well aligned are the national, state and district educational technology plans?
   d. How well did the plans support planning for technology integration and subsequently impact achievement?
   e. What are the common characteristics of educational technology plans of comparable states and districts?
   f. How are other states and districts developing, maintaining and implementing educational technology plans?

2. *In what ways can educational technologies improve instructional development, delivery, and assessment in Nevada?*
    a. Can the use of computer-based assessments be expanded in Nevada to include the administration of the high school proficiency exam in a manner that is cost effective and does not compromise the integrity of the process?
    b. Can the use of laptop computers be expanded in Nevada to replace traditional textbooks in a manner that is cost effective and does not adversely impact student achievement?
    c. Can the use of web-based collaborative technologies be expanded in Nevada to support teachers' lesson development needs in a manner that is cost effective and has a positive impact on student achievement?

3. *What is the current capacity of schools in Nevada to positively impact the achievement of students through the use of educational technologies?*
    a. What is the probability that a classroom teacher in Nevada at any given moment will have in their classroom:
        i. A computer that is less than five years old, internet connected, and currently in good working condition?
        ii. A ratio of students to computers in the classroom that is less than 5 to 1?
        iii. 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?
        iv. Access to timely, dependable and effective technical support?
    b. What is the probability that a classroom teacher will have on any given day:
        i. Utilized technology to support the delivery of a lesson?
        ii. Asked students to utilize technology to complete and individual activity?
        iii. 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 outcomes in sub-questions a and b?

4. *How prepared are Nevada teachers to integrate technology into the classroom?*
    a. What is the comfort level of Nevada teachers with various educational technologies?
    b. What professional development opportunities are available to Nevada teachers?
        i. How do these opportunities vary by district location and size?
        ii. What is the quality of these opportunities?
        iii. What barriers exist to providing effective opportunities?
    c. Are teachers prepared to utilize state and district student assessment data to support instructional decisions?

Workflow Plan

The research questions will be addressed predominantly through the use of online surveys. The surveys will be supplemented by selected interviews and the review of relevant documents. Survey items will be initially developed by the project director and reviewed for their technical and content merits by the project consultants. The initial surveys will be piloted with a small number of selected individuals from the target population. The initial surveys will also be shared with designees from the Commission on Educational Technology

and the Nevada State Department of Education. A final version of the surveys will be developed based upon feedback.

Teacher Survey

A purposeful sample of 800 Nevada classroom teachers will be identified through the 2007-2008 Directory of Licensed Personnel. The sampling will be conducted in a manner that insures a cross-section of classroom teachers are invited to participate. The sampling will take into consideration grade level, content area, district, school characteristics, geography and region.

Technology Coordinators Survey

A purposeful sample of technology coordinators in the state will be identified. Each district will be asked to designate a district technology representative. The identified person would be familiar with the district educational technology plan. In addition to at least one district representative, a select number of school-based technology coordinators will be included in the survey.

Interviews

Interviews are well suited to addressing the proposed questions. However, given the limited time and resources committed to this project, the interviews will necessarily be limited in number. In addition, the interviews must be completed concurrent with the development and distribution of the surveys. In other words, there will be limited opportunities for the interviews to impact the online surveys and vice versa.

The selection of the interviewees will be guided by the respective research questions. In support of question one (state and district technology plans) the following people will be interviewed:

- a purposeful sample of five district technology coordinators

- a purposeful sample of five school based technology coordinators

- a designee from the Commission on Educational Technology

- a designee from the Nevada State Department of Education

In support of question two (supporting instructional development, delivery and assessment), the following people will be interviewed:

- a representative from the current contractor for the administration of the High School Proficiency Exam (Measured Progress)

- at least two representatives from school districts that have replaced traditional textbooks with laptop computers

- at least two representatives from school districts that have a collaborative repository of instructional materials for teachers

While questions three and four will primarily depend upon the survey data, these questions will also be addressed in the interviews of technology coordinators.

Other Data Sources

Additional supporting data for question one will come from a substantive review of the district technology plans and a select number of school technology plans. The primary focus of the review will be to address the sub-points listed in question one. Question two will require a review of the applicable research and evaluation literature in the areas of

computer-based assessment, one-to-one computing, and web-based collaboration in support of teaching.

Timeline

The project team is committed to the mandated deadlines in SB 184.

Task	Completion Dates*
Surveys developed, reviewed and ready for distribution	February 1st.
Literature search and document review	February 1st
Interview protocols developed	February 8th
Surveys distributed and returned	February 22nd
Interviews	March 4th
Survey data analysis	March 7th
Interview data analysis	March 14th
Project update presentation to Commission on Educational Technology	March 18th
Draft report submitted to the State Department of Education for review	April 1st
Final report submitted	April 14th

* Assuming a January 7th begin date.

Technology Needs

The UNLV College of Education has the capacity to meet all of the technical needs described in the study. The project director has designed, developed and delivered a number of web-based surveys. The survey software that will be utilized in this project was most recently utilized to conduct a survey of 600 business students at Temple University in Philadelphia. The software is designed to support best practices that have been identified in the online survey research literature. These best practices include personalized email invitations, the use of random tokens to protect anonymity when necessary, email reminders and cross-platform/browser compatibility.

The same software and procedures were also used to conduct a study of 200 Nevada teachers in the spring of 2006. A copy of a paper that has been accepted for presentation at the 2008 American Educational Research Association annual meeting is included as an attachment.

Table 1. Levels of Data Collected and Data Source

Question	Levels / Data Source
1. What is the current status of the state and district educational technology plans?	

• When were state and district the plans last updated? What measurable goals were included and what, if any, data was collected?
• How well aligned are the national, state and district educational technology plans? How well did the plans support planning for technology integration and subsequently impact achievement?
• What are the common characteristics of educational technology plans of comparable states and districts? How are other states and districts developing, maintaining and implementing educational technology plans?
	• Nevada State Educational Technology Plan
	• District Educational Technology Plans
	• State and District Educational Technology Plans from surrounding states
	• Technology Coordinators Survey (district and school)
	• Interviews
	   o District technology coordinators
	   o School technology coordinators
	   o CET designee
	   o NSDE designee

2. In what ways can educational technologies improve instructional development, delivery, and assessment in Nevada?	

• Use of computer-based assessments
• Use of laptop computers to replace traditional textbooks
• Use of web-based collaborative technologies to support teachers' lesson development needs
	• Interviews
	   o Measured progress
	   o Pertinent school district representatives
	• Technology Coordinators Survey (district and school)
	• Research and evaluation literature search

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

• What is the probability that a classroom teacher in Nevada at any given moment will have in their classroom:
   o a well-equipped computer, projection device and access to technical support?
• What is the probability that a classroom teacher will have on any given day:
   o Used technology in the development and delivery of lessons?
• What are the relationships between the outcomes in sub-questions a and b?
	• Teacher Survey
	• Technology Coordinators Survey (district and school)
	• Interviews
	   o District technology coordinators
	   o School technology coordinators

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

• What is the comfort level of Nevada teachers with various educational technologies?
• What professional development opportunities are available to Nevada teachers?
   o How do these opportunities vary by district location and size?
   o What is the quality of these opportunities?
   o What barriers exist to providing effective opportunities?
• Are teachers prepared to utilize state and district student assessment data to support instructional decisions?
	• Teacher Survey
	• Technology Coordinators Survey (district and school)
	• Interviews
	   o District technology coordinators
	   o School technology coordinators

Appendix A – Budget

Item	Responsible Person	Description	* Personnel Days	Cost
Survey Development	Hartley	Develop initial survey items, solicit reviews, pilot items and revise	8	$3,200.00
Survey Implementation	Hartley	Identify participants; collect and verify email address; import data into survey software; distribute survey invitations and reminders;	5	$2,000.00
Survey Content Review	Strudler	Evaluate construct validity of survey items; insure consistency with national standards and other relevant documents	1	$400.00
Survey Technical Review	Schraw	Evaluate technical adequacy of survey items and design. Review participant sampling methodology.	1	$400.00
Interview Protocol Development	Strudler and Hartley	Develop interview protocols for all interviews.	1	$400.00
Interviews	Hartley	Identify participants and conduct interviews	5	$2,000.00
Survey Data Analysis	Schraw and Hartley	Survey results analyzed with respect to research questions.	2	$800.00
Interview Data Analysis	Strudler and Hartley	Interview data is reviewed, themes identified and coded.	4	$1,600.00
Literature Search and Document Review	Hartley	Identify and synthesize research relevant to research questions 1 and 2	4	$1,600.00
Report Development	Hartley	Synthesize results from all data sources into project report.	3	$1,200.00
Report Review	Schraw and Strudler	Review report for accuracy and completeness.	1	$400.00
Miscellaneous		Report copies, binding and other materials		$300.00
Travel		Three day trips to Carson City at $150 dollars per.		$450.00
		Activities Total		*$14,750.00*
		UNLV Indirect Costs @ 33.3%		$4,911.75
		Total		**$19,661.75**

*Personnel cost/day $400.00

Dr. Kendall Hartley is an Associate Professor of Educational Technology at the University of Nevada, Las Vegas. Dr. Hartley specializes in the development of instructional and teacher support materials using multimedia technologies. He has extensive experience in designing instructional and informational Internet web sites. Dr. Hartley has published numerous articles in peer-reviewed educational research journals including the Journal of Educational Computing Research, Educational Researcher, Journal of Technology and Teacher Education and the Journal of Educational Multimedia and Hypermedia. Dr. Hartley serves on the editorial review boards of the Journal of Educational Multimedia and Hypermedia and the Journal of Computing in Teacher Education. In 2001 he was the recipient of the UNLV College of Education Distinguished New Faculty Award. Dr. Hartley's most recent research activities center on the teachers instructional planning and the use of web-based instructional materials. A paper describing the results of a recently completed survey of 106 Clark County School District teachers regarding their use of technology to support instruction has been accepted for presentation at the 2008 Annual Meeting of the American Education Research Association. Dr. Hartley has significant research grant experience. He served as a Co-PI on a U.S. Department of Education Grant, Preparing Tomorrow's Teachers for Technology ($1.15 million over three years). In addition, he served as the PI on a Web-Course Development project for the U.S. Department of Energy (via contract with Bechtel-Nevada, amount: $54,056).

Dr. Gregory Schraw has served as professor of educational psychology at the University of Nevada, Las Vegas since 2000. He holds a Ph.D. in learning and instruction and an M. Stat. degree in applied statistics. Dr. Schraw served as professor at the University of Nebraska from 1990 to 2000. He has published over 60 research articles, 10 book chapters, and three books. He hosted the Buros Symposium on Mental Measurement in 1995 and edited the proceedings with James C. Impara. He has reviewed for the Mental Measurement Yearbook for 15 years. Currently, Dr. Schraw teaches statistics, assessment, and learning courses at UNLV. He currently serves on the Nevada Technical Advisory Committee. He has served as an evaluator on the Nebraska Statewide Assessment Project since 2001. He completed an alignment study of the Nevada high school proficiency exams for as well as a statistical study of AYP compliance for the STARS assessment system in the state of Nebraska. In 2000, Dr. Schraw received the American Psychological Association's Early Career Achievement Award. In 2004, he received the Barrick Distinguished Scholar Award from the University of Nevada, Las Vegas.

A former seventh grade teacher and assistant principal, *Dr. Neal Strudler* is currently a professor of educational technology, Assistant Chair, and Elementary Coordinator in the Department of Curriculum and Instruction. His research has focused on strategies for integrating technology in both teacher education and K-12 schools. Dr. Strudler has served as a member of the Board of Directors of the International Society for Technology in Education (ISTE) and as president of ISTE's Teacher Education Special Interest Group. He currently is serving as President of AERA's SIG-TACTL (Technology as an Agent of Change in Teaching and Learning), Research Paper Chair on the National Educational Computing Conference (NECC), and as a member of the National Educational Technology Standards for Teachers (NETS-T) Stakeholders Advisory Committee. From 1999-2004 he served as director of Project THREAD, UNLV's PT3 grant that contributed to recent national awards to UNLV's College of Education from the American Association of Colleges of Education (AACTE) and ISTE. Dr. Strudler was named as an Outstanding Faculty Member by the Board of Regents of the University and Community College System of Nevada.