Date: August 16, 2012

To: Tom Torlakson
California State Superintendent of Public Instruction

From: Education Technology Task Force Work Group Facilitators
- Vanitha Chandrasekhar, Long Beach Unified School District
- John Ittelson, California State University, Monterey Bay, Professor Emeritus
- Richard Quinones, Los Angeles County Office of Education
- Kevin Silberberg, Standard Elementary School District

Re: Education Technology Task Force Recommendations

On March 20, 2012 you formed an Education Technology Task Force (ETTF) and requested a set of recommendations, in memo form, to begin the process of preparing a California *Education Technology Blueprint*. You asked the group to help prioritize the issues facing California as we commit to creating an educational system where no child is left off-line (NCLO).

The *National Technology Plan 2010* served as our framework for the Education Technology Task Force that met three times face-to-face. Between Task Force meetings, each of four working groups frequently met electronically and focused on learning, assessment, teaching, and infrastructure. Each working group studied research, shared case studies, and discussed the challenges of bringing the power of education technology to each student and teacher in the state.

Recommendations

The work group memos are attached. Highlights of their recommendations include:

Learning:

- Promote expanded use of online instructional materials and ensure access to technology that facilitates student engagement with standards-based curricula and develops 21st century competencies.

- Build a political coalition to support “any time, any place, any pace” learning and encourages individualized learning opportunities.

- Advocate for broad implementation of existing model frameworks that include technology fundamentals such as the *Model School Library Standards for California Schools* and the *California Career Technical Education Model Curriculum Standards*.

- Lead the effort to find a solution to the Average Daily Attendance and instructional minutes barriers that limit teacher flexibility in using technology in synchronous and asynchronous instruction.

Assessment:

- Draw upon assessment approaches from multiple sectors outside of education.
- Develop an assessment system that provides feedback to students and provides validation from experts to help students connect their learning to the real world.
- Use ranked data sources through an open source-learning registry that provides the technical infrastructure and community practices for sharing learning resources across learning management systems (i.e. Brokers of Expertise).
- Create modern, personalized assessments by providing essential technology, infrastructure, and professional development based on Common Core State Standards formative and summative computer adaptive assessments.
- Communicate about data access and privacy issues and about the upcoming changes to the California assessment system.

Teaching:

- Continue to leverage and provide a regional and statewide technology support system to meet current and emerging needs of teachers and administrators.
- Ensure that the use of technology is addressed and coordinated among the branches and divisions of the California Department of Education (CDE) by restructuring a cabinet level position for technology.
- Review current policy to facilitate the implementation of technology including online teaching and learning, teacher and administrator certification, and professional development standards.
- Encourage and reward teacher and administrators' use of technology to support current and emerging paradigms of learning.
- Develop a comprehensive technology blueprint to include formative and summative assessment of the policies, programs, and services as implemented

Infrastructure:

- Ensure that every student has access to at least one Internet connected device for learning any time, any place; often called 1:1 or One-to-One technology learning initiatives.
- Support the development of minimum bandwidth standards.
- Advocate for scalable and flexible infrastructure deployments.
- Leverage the existing regional service model provided by County Offices of Education and share best practices across the state.
- Collaborate with industry partners and form public-private programs.
- Connect existing data systems.
- Engage more directly with the California Public Utility Commission (CPUC) and the Federal Communications Commission (FCC).
- Develop guidance documents for 21st century competencies that include an emphasis on safety and appropriate use.
- Develop guidance on use of digital devices to meet the requirements of the *Eliezer Williams, et al., vs. State of California, et al.* settlement.
- Restructure a cabinet level position to provide leadership at the California Department of Education (CDE) to implement No Child Left Offline (NCLO), coordinate technology integration into the daily work of the CDE, and be a resource on legislative and policy issues surrounding education technology.

State Superintendent of Public Instruction
Tom Torlakson

Education Technology Task Force

Work Group Memos

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State Superintendent of Public Instruction
Tom Torlakson

Education Technology Task Force

Recommendations

Learning Work Group Recommendations

I. Work Group: Learning

Facilitator

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Members

- Frank Baxter, Co-Chairman, Alliance College-Ready Schools
- Michael Berg, Superintendent, Central Unified School District
- Robert Craven, Director, Technology and Media Services, Fullerton Elementary School District
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Support Staff

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Topic

All learners will have engaging and empowering learning experiences, both in and out of school, that prepare them to be active, creative, knowledgeable, and ethical participants in our globally networked society.

II. Context

The *National Education Technology Plan 2010* establishes the following overall goal related to learning:

> *All learners will have engaging and empowering learning experiences both in and out of school that prepare them to be active, creative, knowledgeable, and ethical participants in our globally networked society.*

To meet this national goal, the national plan recommends the following:

- *States should continue to revise, create, and implement standards and learning objectives using technology for all content areas that reflect 21st-century expertise and the power of technology to improve learning.*

- *States, districts, and others should develop and implement learning resources that use technology to embody design principles from the learning sciences.*

- *States, districts, and others should develop and implement learning resources that exploit the flexibility and power of technology to reach all learners any time and any place.*

- *Use advances in learning sciences and technology to enhance STEM (science, technology, engineering, and mathematics) learning and develop, adopt, and evaluate new methodologies with the potential to inspire and enable all learners to excel in STEM.*[1]

In response to the national plan and recommendations related to learning, the Task Force recognizes that California's public education system already relies on core sets of standards-based concepts and competencies that form the basis of what all students should know and should be able to do. California has for many years maintained highly regarded content standards in English language arts, English language development, mathematics, health education, history-social science, physical education, science, visual and performing arts, and world language.

California is currently implementing the *Common Core State Standards in English Language Arts and Literacy in History/Social Studies, Science, and Technical Subjects* and in *Mathematics*. California is also currently participating in a national effort to develop *Next Generation Science Standards*. In recent years, California has published the *Model School Library Standards for California Public Schools* and the *California Career Technical Education Model Curriculum Standards* (that include technology foundation standards), and these latter standards are currently being revised.

The Task Force acknowledges that advances in learning sciences and related scientific fields have illuminated the connections between factual knowledge, procedural knowledge, and motivational engagement, and that technology has expanded the capacity for learning in measurable ways.[2] As a result, the Task Force believes that California's public schools should foster environments that exploit the value of technology in enhancing learning and improving academic achievement.

The Task Force finds that the "always-on" nature of the Internet and the proliferating use of mobile access devices provide our state's public education system with an outstanding opportunity to create learning experiences that are available any time and in any place. In addition, when these technology-assisted learning experiences reflect design principles for personalized learning and Universal Design for Learning, the state can increase the equity of access to educational settings for all students and especially

[1] U.S. Department of Education, Office of Educational Technology (2010). Transforming American Education: Learning Powered by Technology. Executive Summary. http://www.ed.gov/technology/netp-2010 (accessed June 1, 2012).
[2] National Research Council. (2000). How People Learn: Brain, Mind, Experience, and School. Washington, DC: National Academy Press.

for students who have faced historic and persistent disadvantages. In this way, digital learning can be accomplished at any pace.

Based on its review of research and over three months of reflection and discussion, the Task Force concludes that:

- Digital learning is an essential approach to enabling all students to graduate from high school with the essential thinking and problem-solving skills needed to thrive in the changing world of the 21st century.
- Improving the digital literacy and the ethical citizenship of all students requires the development of digital learning resources and standards for the statewide sharing of these resources.
- To be "online," digital learning must include *any time, any place, any pace*.

III. Key Recommendations and Options

A. <u>To move California public schools from static text-based resources to dynamic, interactive, adaptive multimedia content that engages, empowers, and connects students to all forms of learning</u>, the Task Force recommends that the State Superintendent:

- Champion efforts that foster increased student engagement in the use of technology.
- Promote innovation, through the availability of tools of statewide benefit, to transition schools from the historical dependence on textbooks and toward an expanded online deployment of instructional materials.
- Ensure access to technology that facilitates student engagement with standards-based curriculum and instructional materials, and enables students to develop 21st century competencies.

These recommendations are predicated on the rationale that California students generally want and deserve:

- Lessons to be presented in an interesting and interactive way using a contemporary computer device (i.e., a Smartphone, tablet, or laptop).
- Teachers who collaborate with students in using classroom technology, and who do not discourage student use of technology in the classroom—for valid and appropriate instructional purposes.
- Engaging, interactive curriculum that can be carried in a single wireless device, instead of a heavy backpack full of un-engaging, static textbooks.

- Opportunities to learn from fellow students in and outside of class, through the use of various safe and appropriate collaborative applications as well as Internet-based social media.

- Options for learning that allow for competency and creativity providing unique student perspectives.

- A school experience that is a desirable and valuable use of time rather than a legally required activity.

- Graduation from high school with the essential thinking and problem solving skills needed to be successful in a challenging and changing world.

B. **To build on the collective political will of all California stakeholders to an "any time, any place, and any pace," digital public education system reflecting a 21st century expertise,** the Task Force recommends that the State Superintendent:

- Promote learning on a 24/7 basis with 1:1 device usage available to all members of the public education community.

- Champion efforts that foster student engagement and individualized learning through the use of technology.

- Sponsor state legislation to encourage all district and school technology plans to embrace and be aligned with the *Model School Library Standards for California Public Schools*, and the technology foundation standards of the *California Career Technical Education Model Curriculum Standards.*

- Advocate the removal of barriers that limit teacher flexibility in using technology in the delivery of instruction (for example, reform Average Daily Attendance and instructional minute requirements).

- Propose the establishment of incentives to expand student opportunities to use school-related technology resources (for example, expect all high school graduates to complete a minimum number of online enriched courses).

These recommendations are predicated on the rationale that California students generally want and deserve:

- Legislators, school administrators, teachers, and parents who *ask* what students now need and want, rather than assume that students should be provided with the same educational program that was provided to earlier generations.

- Adults who teach what students need to know for the 21st century, rather than what textbook authors deem to be important.

- Opportunities to access and use contemporary and relevant technology tools and Internet resources that are comparable to the tools and resources used by adults.

- Access to curriculum, research resources, laboratory materials, and homework at school, home, or wherever else students engage in learning.

- Adult decision makers to think the way students do—quickly, innovatively, and without the fear that "we have never done that before."

C. **To provide multiple and flexible means by which digital universal access for learning would be made available to every student in the California public school system**, the Task Force recommends that the State Superintendent:

- Define and adopt 21st century competencies that all students will have the opportunity to learn, refine, and sustain.

- Promote and fund the use of challenge-based instructional strategies that are delivered by teachers in blended learning environments.

- Ensure access to technology that facilitates student engagement with standards-based curriculum and instructional materials, and enables students to develop 21st century competencies.

These recommendations are predicated on the rationale that California educators generally want and deserve:

- Teachers to widely share best practices and tools with their peers so that learning will be engaging and meaningful for all students.

- Technology tools that fit the needs of all learners to learn in all the ways that people learn.

- To be an active participant in transforming California public education in the 21st century, and to be leaders in a paradigm shift that will benefit generations to come.

- To learn ways to advance educational leadership in the interest of preparing all students, irrespective of background, to be productive and successful citizens of the 21st century.

Assessment Work Group Recommendations

I. Work Group: Assessment

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- Hilda Sugarman, Trustee, Fullerton Elementary School District
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Topic

Along with teaching and learning, assessments that are connected to real world scenarios are important in preparing our students for a competitive world and should not only allow students to demonstrate learning of standards-based concepts, but also support them to personalize their own learning. The Assessment Work Group will make recommendations on the use of educational technologies that improve the richness, accuracy, and utility of assessment and promote the demonstration of 21st century skills.

II. Context

California is the most populous state in the United States and, at this time, is one of the lowest ranking in terms of reading, math, and science. Educating over six million students, the state serves approximately 1.5 million (23 percent) English learners, 176,000 (3 percent) migrant students and provides assistance for over 600,000 (11 percent) students with special needs.

While recent longitudinal cohort data reveal that nearly 76 percent of California students who started high school in 2006 graduated with their class in 2010, slightly more than 14 percent dropped out, failing to complete their K-12 educational pathway. The data revealed that nearly 8 percent of the cohort entered GED programs and some were still enrolled in other public school programs.[3]

Acknowledging the changing demands of a 21st century global workplace and the necessity to respond to the diverse needs of California's students, it is imperative that the state establishes

[3] California Department of Education (CDE). 2012. Dataquest. http://dq.cde.ca.gov/dataquest (accessed July 2, 2012.

creative and innovative ways to prepare our students to compete successfully in an ever changing digital world.

Leveraging access and use of technology through personal devices will greatly benefit highly mobile and underserved students by providing exposure to educational content not only during traditional instruction time, but also before/after school and during weekends. In addition, the transition to SMARTER Balanced Assessment Consortium (SBAC) and computerized adaptive testing creates an opportunity for students and teachers to use digital devices for instructional purposes that will provide differentiated instruction and real time formative assessment results to yield a more personalized and continuous learning for students.

Children today are digital natives and use digital tools and technologies in their day-to-day world and are online all the time. We believe our education system has been slow to understand the shift in the nature of our children and often ask them to turn off their technologies in schools rather than leverage their utility. In order to engage and motivate our students, we need to provide them with the tools and resources in an educational setting with which they live and communicate on a daily basis. Digital tools and resources should be ubiquitous and seamless in our educational institutions. Students need to have any time, any place access to these resources and should be able to use them for learning and assessment in multiple settings.

Current law establishes the Standardized Testing and Reporting Program (STAR) as the state's primary K-12 assessment system. The STAR program, scheduled to sunset in 2014, is currently comprised of five assessment measures (i.e., California Standards Tests, Spanish Assessment of Basic Education primary language, California Alternative Performance Assessment for special education pupils, California Modified Assessment, and the Early Assessment Program).

Following the adoption of the Common Core State Standards (CCSS), California joined the SBAC as a governing state to establish relevant assessments based on consistent and clear education standards. The assessments developed through SBAC will measure English language arts and mathematics in grades 3 through 8 and grade 11. California has deployed an IT Readiness Tool, a Web-based system used to collect information on the technology at schools. This information will be used to help prepare districts for the SBAC computer adaptive assessments in 2014-15.

Through participation in SBAC and reliance on “performance based” computerized adaptive testing methods, it is anticipated that California will have a better understanding of how the state’s education system is preparing students for success in college, career, and the competitive global economy.

Assembly Bill (AB) 250 (Chapter 608, Statutes of 2011) requires the State Superintendent of Public Instruction (SSPI) to develop recommendations, including a plan to transition to a new system, for the reauthorization of the statewide pupil assessment system. In addition to addressing the transition to SBAC, the work from AB 250 will focus on PK-3, 9th, and 10th grade assessments and consider the need to develop assessments for science and history/social studies. Recent proposed legislation, AB 2001 (Bonilla), is intended to further address potential gaps in assessments by requiring assessments for grades 7 through 12 that focus on college and career

readiness alignment with postsecondary admission requirements for colleges and universities and career technical training. In addition to the newly adopted Common Core State Standards, California's 21st century assessment system will be guided by pertinent state and national standards.

In order to ensure that the children of California are prepared for adaptive computer based assessments, we need to make certain that they have access to digital devices 24 hours of the day and 7 days a week. Despite the loss of federal No Child Left Behind, Title II, Part D, Enhancing Education Through Technology (EETT) funding and the national underinvestment in technology, California can provide access to tools and resources for any time, any place learning through the adoption of policies that encourage state and local funding of these resources.

Local educational agencies are seeing the value of these technological devices and providing a multitude of options for parents and students to consider (i.e., student funded model or "Bring Your Own Device," district funded model, and hybrid funded model). For example, Fullerton Elementary School District adopts a hybrid model by offering a parent choice program that provides parents with the option to purchase the device or request supplemental assistance from the district.

Other states are devising creative state funded programs that are similar to the federal E-rate program, where the state can assess fees on certain telecommunication services to provide technology subsidies to districts. Finally, California has an opportunity to leverage the education lottery funds to sustain educational technologies that will be necessary to support 21st century assessments. The state generates approximately $1 billion in lottery funds with a projected increase of 40 percent for 2012-13.

The assessment work group recommends that the state capitalize on recent legislation that increases the amount of lottery revenue allocated to public education and specify within the lottery account that these funds be used for "instructional purposes" including technology.

III. Key Recommendations and Options

Assessments need to be adaptive in terms of evaluating core skills and mastery of content. Teachers should be able to conduct formative assessments on an ongoing basis to inform instruction as well as summative to determine student proficiency. In addition, teachers should rely on these assessments as a tool for self-evaluation in refining instructional practices to improve student outcomes. Current assessment practices focus on student input and less on student output of information. Additionally, a focus on creation of content is needed.

In order to support the use of educational technologies that improve the richness and accuracy of assessment and promote the demonstration of 21st century skills, the *ETTF Assessment Work Group* recommends that the state accomplish the following:

Recommendation 1: Draw upon assessment approaches from multiple sectors outside of education that are ongoing, balanced, adaptive, multimodal, and relevant to real world applications (Short Term).

Rationale: Assessment and learning happen everywhere for students and schools need to become better at recognizing and accommodating learning in every aspect of life. Digital technologies offer the possibility of much less intrusive measurement of learning and progress, as well as greater personalization and information to the student and teacher. Assessments should be balanced to allow students to demonstrate mastery of fundamental core (standardized subject) skills and establish proficiency in various 21st century skills. Students should be evaluated on their ability to produce original and creative work using a multitude of tools, including social networking, and these student-driven products should be evaluated based on quality not just quantity.

Analysis of the Source of the Problem: The peripheral use of technology that is adopted for traditional instruction and assessment fails to leverage the engaging and empowering learning experiences that can be realized through the student centered use of instruction and technology.[4] Further, the historical reliance on standardized criterion referenced (i.e., item response theory) multiple choice assessments neglects to measure individual levels of mastery and captures proficiency of core subject areas at only one single point in time.

Analysis of the Proposed Solutions/Strategies: California can utilize ongoing adaptive balanced assessments with real world applications (diagnostic and formative) to further the personalization of learning by promoting a participatory culture that encourages students to function as active agents in the assessment and evaluation of their learning. For example:

- Digital Devices: We recommend that there is a digital device in the hands of every student and educator across the state that enables students to personalize their learning, collaborate and communicate with their peers, and co-construct assessments for learning with peers, mentors, and teachers. Adoption of these devices can provide real-time information that advances instruction (e.g., on-screen quiz taken and scored on personal device to modify instructional unit within one class period).
- Social Networking: Educators are beginning to embrace a shift in assessment methods from individual processes to socially engaged processes through the use of blogs and interactive dialogue to ascertain the quality of discourse and participation on the subject of interest. For example, online fiction fan communities provide instructional supports (e.g., reading, writing, posting, commenting, and evaluating work) that assessments could easily align to measure participatory outcomes that are reflective of 21st century skills (e.g., teamwork/collaboration, written communication, creativity/innovation, etc.).
- Digital Products: Expansion of student outputs and outcomes using digital tools and media-rich resources to demonstrate learning (graphic art, video, music, kinesthetic, etc.). Creativity, collaboration, and communication should be an integral part of the assessments allowing students to demonstrate their learning in multiple ways reflecting 21st century skills.

[4] Rosen, Y., & Beck-Hill, D. (2012). Intertwining digital content and a one-to-one laptop environment in teaching and learning: Lessons from the time to know program. *Journal of Research on Technology in Education*, *44*, 225-241.

Recommendation 2: Develop a system that provides students with feedback and validation from experts in the field and strengthens the relevance of assessments by allowing students to make connections between their learning and the real world (Intermediate Term).

Rationale: Paradigmatic changes in educational technology programs foster achievement systems that allow for the evaluation and recognition of skills and achievement outside of traditional classroom practices. Validation of student learning by experts in the field provides students with relevance and connections to the real world.

Analysis of the Source of the Problem: Students are not identifying a connection between the content that is being measured on standardized assessments and real-world application.[5] This disconnect is further exacerbated when the results of these assessments are not linked or used for more meaningful purposes (i.e., postsecondary admissions and/or career resume).

Analysis of the Proposed Solutions/Strategies: The state will recognize the use of alternate creative assessments and credentials that distinguish quality in creating content and validation of accomplishments, such as:

- Digital Badges: A badge represents the achievement of cognitive, social-emotional, and behavioral skills that can be developed through regular course offerings or through participation in extracurricular opportunities.[6] The *ETTF Assessment Work Group* recommends that the state support LEAs in the deployment and use of digital badges that reflect innovative accomplishments that may be useful for postsecondary or employment pursuits (e.g., State Seal of Biliteracy, Early Commitment to College, and Career Technical Education Certifications).
- Creative Commons: Open or "passionate affinity" spaces that promote the sharing and use of digital creativity and knowledge. These learning communities strengthen the relevance between student creations and real-world applications by providing forums for knowledge sharing and peer/mentor evaluation of accomplishments.
- Game-ification of Tests: The infusion of "gaming" and interactive technologies into instruction and measurement of learning has been found to strengthen engagement and student achievement.[7] Through the use of technology, learning and assessment becomes more personalized (e.g., as depicted in the book Enders Game, each student has a technological 'desk' where highly personalized learning and scaffolding takes place that is being supported by an expert).

Recommendation 3: Make use of ranked data sources through an open source learning registry that provides the technical infrastructure and community practices for sharing

[5] Martineau, J.A., & Dean, V.J. (2010). Making Assessment Relevant to Students, Teachers, and Schools. In V.J. Shute, B.J. Becker (eds.), *Innovative assessment for the 21st century.* New York, NY: Springer.
[6] Kyllonen, P.C. (2012). Measurement of 21st century skills with the common core state standards. Invitational Research Symposium on Technology Enhanced Assessments. K-12 Center at ETS. http://www.k12center.org/events/research_meetings/tea.html (accessed July 5, 2012).
[7] Hickey, D.T., Ingram-Goble, A.A., Jameson, E. M.(2009). Designing Assessments and Assessing Designs in Virtual Educational Environments. *Journal of Science Education and Technology, 18*, 187-208.

and transporting information about learning resources across learning management systems (Intermediate Term).

Rationale: In order to ensure that teachers and students have access to high quality content and digital resources, there needs to be a process to share descriptive and social usage metadata on learning resources.[8]

Analysis of the Source of the Problem: Existing processes that rely upon manual hyper linking of resources is time consuming and limited to a "gatekeeper" process to approve the posting and sharing of information. Parallel to the issues identified with the current textbook adoption process, the rating and sharing of instructional materials that also support assessment performance must be revised to improve efficiency.

Analysis of the Proposed Solutions/Strategies: With the adoption of Common Core State Standards, California now has an opportunity to share what it knows and make use of information provided by other states. This sharing can occur through technical systems to facilitate the exchange of data between resource creators, publishers, curators, and consumers who are collaborating to broadly share resources, as well as information about how those resources are used by educators in diverse learning environments across the Web, such as:

- California Learning Resource Network (CLRN)
- Brokers Of Expertise
- Learning Registry
- Common Sense Media

Recommendation 4: Create modern, personalized 21st century assessments by providing essential technology/infrastructure and educator professional development with Common Core State Standards and summative computerized adaptive assessments (Long Term).

Rationale: With the upcoming Common Core State Standards assessments, it is important that the education community understands all the various implications for computerized adaptive assessments. While the SBAC will design assessments that measure up to two grades above and below grade level, the use of digital technology mainly for summative assessments would not provide an accurate representation of student learning (e.g., expand to comprehensive e-portfolio).

Analysis of the Source of the Problem: Traditional pedagogical approaches position the teacher as the "instructional transmitter" rather than more progressive forms of collaborator and facilitator in the learning process. Assessments aligned with this traditional approach assess pre-established levels of mastery of the same subject rather than an adaptive measure of mastery. Thus, accurate levels of students performing above or below grade level are not captured. To depict student learning using one inflexible measure in time provides an artificial indicator of learning.

[8] Hobson, J., & Lee, A. (2012). *Building a network of resource-sharing states: An overview of the learning registry for state decision makers and strategists.* SRI International. http://goo.gl/vOSx9 (accessed July 6, 2012).

Analysis of the Proposed Solutions/Strategies: California must commit to support the essential infrastructure (i.e., Internet access, computer devices, and technical support) and professional development necessary to support the new SBAC assessments and expand to collect nontraditional summative measures as well. To do this, the state must streamline existing measures, support interoperable robust infrastructures, and use emerging technologies to leverage nontraditional summative measures. For example:

- Eliminate statewide end-of-course assessments that are unnecessary for the purposes of state and federal accountability requirements.
- Strengthen the relevance of statewide assessments in grade 11 English language arts, mathematics, and science to align with college admission tests.
- Create alternative summative assessment opportunities that supplement the traditional approaches used to measure student learning (e.g., inclusion of "biodata" or resume experience information).
- Support the deployment of statewide student e-portfolios that are based on industry standards and make e-portfolio content available to students as they progress through postsecondary pathways (e.g., hyperlinks to authenticated measures).

Recommendation 5: Provide consistent and effective communication about data access and privacy that educates key stakeholders (e.g., administrators, teachers, parents, and students) about the pending changes to California's assessment system (Short Term).

Rationale: Parents and educators need to understand the importance of digital tools and their effectiveness for assessment of student learning. This is a paradigm shift from standardized testing towards real life situations and 21st century learning and parents need to be educated on the validity of these shifts. Teacher preparation programs need to become better informed about the prospective use of these new assessments as potential indicators of teacher effectiveness. In order to maximize this opportunity for change, we recommend that state leadership establish policies that provide incentives around the ethical and meaningful use of assessment data.[9]

Analysis of the Source of the Problem: A student's historical progress on assessment performance doesn't always present a picture that is reflective of her/his current needs. This coupled with professional educators being subject to low expectations around assessment literacy limits the meaningful use of assessment information to inform instruction. Without clear assurances around meaningful use, California will continue to experience a disconnect between the use of formative and summative assessments for sanctioned-based accountability versus student achievement.

Analysis of the Proposed Solutions/Strategies: California must prioritize digital privacy and transfer of records in a manner that allows educators to track and assess students in order to help them learn and experience successful transitions along the P-20 continuum.

[9] Federal Communications Commission (FCC). 2010. *Connecting America: The National Broadband Plan*. http://www.broadband.gov (accessed May 15, 2012).

- Districts should be able to transfer data about students easily and digitally to each other and to other organizations involved in student learning, where authorized by parents or law.
- Students and parents should have the right to control the distribution of their information (except for information required to be transmitted by law).
- To support these strategies, we recommend the state clearly communicate expectations and incentives around meaningful use policies.
- We also recommend that the state support LEAs in providing personalized "opt-in" and "opt-out" policies for parents and students to share meaningful student achievement data and accomplishments with postsecondary institutions and potential employers.

In order to ensure that the efforts of the Education Technology Task Force are continued, there needs to be a firm commitment from the State stakeholders to maintain their support of technology for teaching, learning, and assessment. It is imperative that the California Department of Education provide innovative leadership and support that assures consistent funding and oversight of technology supports to LEAs. To further ensure sustainability, state leadership must provide ongoing education for legislators and their staffers on the importance of technology.

Teaching Work Group Recommendations

I. Work Group: Teaching

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Support Staff

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Topic

Recommend actions the State Superintendent of Public Instruction should consider for supporting and enabling all teachers to make effective use and integration of technology into all areas of instruction from pre-school and grades K-12, through adult and career education.

II. Context:

A. Educational Context: There exists in California as well as nationwide an increasing need for teachers, school administrators, and state leadership to address the rapidly increasing demand for the use of technology to increase and provide on-demand learning opportunities.

Education needs to keep pace with student use of mobile technologies, use of technology to expand learning beyond the classroom, use of technology to expand learning opportunities aligned to the Common Core State Standards and impending implementation of computer adaptive assessments. Such assessments must inform instructional planning while providing

reliable data for evaluating educational programs at all levels from the classroom to the state level.

The annual *Speak Up* a national online research project facilitated by Project Tomorrow consistently shows the major barriers to using technology include lack of teacher training, difficulty in evaluating quality of digital content, balancing classroom time with other priorities, concerns about student safety, and lack of adequate infrastructure.[10] Surveys conducted for the CDE have consistently shown that sufficient support and professional development for teacher use of technology is not available to many teachers–especially in rural areas of the state.

Because of the categorical program flexibility provisions of recent state budgets, regional support and professional development supporting teacher technology use has diminished in many regions of California. Evaluation of the regional support systems consistently shows a need for an increase in these services. Finally, we believe that teacher-training institutions are not adequately preparing new teachers to use technology as an important teaching resource. This memo to the Superintendent of Public Instruction is intended to address these barriers and offer possible solution strategies to be considered.

B. Legislative / Policy Context: Since 1980, California has legislated, with related funding, a variety of programs to support teacher use of technology to support curriculum and instruction beginning with the *Teacher Education and Computing Centers* (1980). In 2008 the *California Technology Assistance Projects* (CTAP) and the *Statewide Educational Technology Services* (SETS) projects were reauthorized (SB 1637, Torlakson). However, these programs are diminishing due to the categorical flex provision of the state budget and are due to sunset on January 1, 2014. New legislation will be needed to fund new programs, continue existing programs, and/or to remove them from the categorical program flexibility provisions of recent state budgets.

C. Political / Fiscal Context: The political context suggests that it is necessary to make the case that the use of technology in education can ultimately result in a saving of funding over time while increasing learning. However, teachers will need to be able to make efficient use of technology for this to happen. There is pressure from many district and county superintendents to retain much of the prior categorical funding in the flex category so they will have the freedom to re-direct funds to salaries and other resources in the face of pending budget cuts. If the flex funding model is maintained, compelling reasons to use the flex funding for technology support need to be communicated to school administrators. Another consideration could be to seek private funding to be contributed to a state level educational technology foundation that could potentially fund some of the teacher-support services related to the use of technology.

[10] Project Tomorrow. 2012. http://www.tomorrow.org/speakup/index.html (accessed July 3, 2012).

III. Key Recommendations and Options

Recommendation 1: *Legislative Action Needed*–Continue to provide legislatively authorized regional and statewide support programs and services designed to meet current and emerging needs of all teachers and school administrators to use technology to support student learning.

Timeframe: One Year

Rationale: This is a short-term recommendation due to the fact that the current legislation (SB 1637, Torlakson) which authorizes regional and statewide technology assistance to teachers and administrators sunsets on January 1, 2014. Additionally, since the authorization of the *flexibility provision* of the budget, and the on-going fiscal emergency facing our schools, funds for these services are increasingly being diverted to other programs. Extensive evaluation has documented the need and impact of professional development to prepare and support teacher and administrator use of technology in ways that have a high probability of improving learning opportunities and achievement.

California, like most states, provides regionalized services for professional development as well as many other services to support school and district needs. Supporting legislation is critical to assure the availability of content standards-aligned electronic learning resources, an online-help desk, technical support and other support and information needed for planning and use of technology both for instruction and administrative work is critical.

Analysis of the Problem: The major source of the problem or need for regional and statewide technology support services is an increasing need for training and experience on the part of teachers to understand and effectively use technology in ways that improve learning and student engagement. However, reduced funding is caused by competition from other programs for the same funds that were previously earmarked for technology. In general, the demand for technology support has increased while the available funding support has decreased across California.

Additionally, surveys have shown that there has been a lack of understanding on the part of legislators and other state policy makers about the importance of teacher and administrator support for technology planning, implementation, and evaluation. There are cases where school districts have purchased expensive classroom level technology that has rarely been used because teachers lacked the training and ongoing support needed to make effective use of technology.

Proposed Solution Strategy: First, it is necessary to begin the process of enabling new legislation that would fund new programs or continue regional and statewide programs with a variety of improvements to ensure that these programs address the recommendations of the ETTF as well other priorities established by the CDE relating to the use of technology in education. The CDE should identify a legislator to author a new bill or to re-authorize current regional and statewide services needed to implement the plan and related policies. Work on this bill should be initiated no later than November 2012 and introduced in February 2013. It would

be desirable to prepare a Joint Resolution to be adopted by both houses of the legislature that would help publicize the work of the Task Force and begin obtaining commitments from legislators to support the need for this legislation.

Additional Legislative Actions*:* The State Superintendent should include a line item in the proposed education budget for regional and statewide educational technology support services as well as other items related to technology. He also needs to work with the State Board of Education and the Governor to obtain support for a line item in the state education budget for technology. Additionally, and where appropriate, the CDE should incorporate a technology component into existing and new programs and project budgets. Documentation with clear rationale to justify the use of technology in ways that show how technology can ultimately help the system operate more cost-effectively needs to accompany both the budget negotiation and the legislative advocacy efforts. Also, the Superintendent should identify new and emerging legislation that has implications for technology in education and work with the authors of such legislation to help ensure compatibility with the California *Blueprint for Great Schools* and the new California *Education Technology Blueprint*.

Recommendation 2: *Technology Across State Programs*–Ensure that the use of technology is addressed and coordinated between the CDE branches and divisions.

Timeframe: Four to eight years and ongoing

Rationale: Educational technology is often implemented from the State level in ways not integrated with other initiatives to improve student learning. Evaluation and experience has shown that many of these programs are not incorporating technology where technology could improve implementation, efficiency, and impact of these programs and the projects they fund. The separation of technology is also very prevalent at the county and district levels and this is partially due to the program directives from the State that often omit the integration of technology.

Analysis of the Problem: The infusion of technology into current and emerging education programs could potentially improve said programs while leveraging funding from these programs to support effective use of technology. An example would be consistent and shared use of interactive video-conferencing to conduct meetings and professional development within all programs, as appropriate.

Proposed Solution Strategy: Overall, a better system of articulation among programs could lead to improved access to technology resources and could reduce duplication of effort. The *ETTF Teacher Working Group* recommends:

1) Work with each program in the CDE to add a technology component (including grants and sub-grants issued by the CDE).

2) Provide a technology help-desk for use by all CDE staff

3) Provide an annual CDE-sponsored conference featuring effective uses of technology in all program areas.

4) Ask each program to include an effective use of technology to support some aspect of the program.

5) Identify model uses of technology as part of the selection criteria for school recognition programs.

6) Provide common technology support systems available across all programs.

7) Establish or re-structure a cabinet level position within the CDE responsible for both internal and external implementation of technology policies and programs.

Recommendation 3: *Update State Education Policy*–Review current state education policy and make amendments as appropriate that can facilitate the implementation of technology to include online teaching and learning, teacher and administrator certification, and professional development standards.

Rationale: The state education system is guided by policies set by the Governor, Legislature, and State Board of Education and implemented by the State Superintendent of Public Instruction. Because technology has prompted some major changes in how instruction, professional development, and teacher training are delivered, new policies and guidelines are needed.

Analysis of the Problem: The *ETTF Teaching Work Group* discussed a variety of problems relating to the need to develop new policies as some of the current policies are preventing districts from moving forward in their procurement and implementation of technology to support teaching and learning. Often the lack of a policy can prevent programs from being implemented. Online learning is an example—online learning programs cannot collect ADA funding for students enrolled in asynchronous online courses. Another example is the need to define a more timely process for adopting digital learning materials.

Proposed Solution Strategy: There are many policies we believe that the State Superintendent of Public Instruction can institute without a great deal of cost. The *ETTF Teacher Working Group* recommends:

1) Define or adopt national or internationally accepted definitions/descriptions of specific qualifications for effective use of technology by teachers and administrators,

2) Implement positive strategies for assessing teacher-use of technology,

3) Develop guidelines with models on how technology can support the adopted Common Core State Standards curriculum as well as the *Model School Library Standards for California Public Schools,*

4) Address barriers and outdated regulations related to online instruction (synchronous and asynchronous) such as registration, attendance, evaluation, and accounting,

5) Review subject matter frameworks to align guidance with the Superintendent's technology vision, and omit negative references to technology use,

6) Adjust state policy regarding time allocated for teaching adopted materials to allow for the use of Common Core State Standards-aligned supplemental digital materials,

7) Work with higher education to bridge the gap among pre-service, in-service, and teaching practice, and

8) Ensure that technology as a content area is integrated into state supported programs related to Regional Occupational Centers and Vocational Education programs.

The *ETTF Teacher Working Group* also recommends that the State Superintendent of Public Instruction (SSPI) work with the Commission on Teacher Credentialing to encourage the updating and augmentation of current credentialing and certification programs for teachers and school administrators to include specific content related to the use of technology to support teaching practice and school/district administrative practice.

Recommendation 4: *Support Technology Use by Educators* –Take actions that encourage, support, and reward teacher's and administrator's use of technology to support current and emerging paradigms of learning.

Timeframe: One year and ongoing

Rationale: Teachers and administrators need to be up-to-date on the most effective ways that technology can support current and new strategies and approaches to improve both student learning and engagement.

Analysis of the Problem: The problem most often expressed by educators is not having easy ways to keep up-to-date on technology and how it can enhance teaching and learning. Teachers reported that participation in conferences and events sponsored by Computer Using Educators, Inc, California Technology Assistance Project, and Statewide Education Technology Services projects was part of the solution to keeping up-to-date, but that they needed more access to the types of programs offered by these and other entities, including industry partners, involved in providing teacher-professional development.

Proposed Solution Strategy: When developing the new California *Educational Technology Blueprint*, the specific recommendations below should be considered in the design of the plan. The *ETTF Teacher Working Group* recommends:

1) Support incentives and recognition for teachers to develop and share effective and innovative uses of technology at an easily accessible online site,

2) Advocate for reliable and on-demand 24/7 instructional technology support for teachers and school administrators, both in the classroom and at home,

3) Provide for a strategy to document and report on effective practices to be widely shared through a variety of methods that may include: open source webinars, social networking, and existing information portals, and active collaboration between K-12 and higher education,

4) Encourage new alternative teaching models with documented effectiveness for online and blended learning and competency-based independent learning options among many other delivery systems including "flipped classroom" and project based learning,

5) Advocate for a more dynamic and comprehensive evaluation system of students that includes the integration of technology rather than reliance on standardized testing,

6) Recruit qualified teacher candidates and provide the technology integration and digital competence that will be needed in today's classrooms, and

7) Ensure equal distribution/access to professional development services to teachers and administrators across the state–especially in rural areas.

Recommendation 5: *Planning and Evaluation for Technology Support*–Develop a comprehensive technology plan that includes a formative and summative assessment of the extent to which the policies, programs, and services relating to the use of technology to support teaching and learning are implemented and meeting the plan objectives or can be improved to meet the objectives.

Timeframe: One year or less

Rationale: California has not developed and implemented a comprehensive educational technology plan since 1991. The 1991 plan was the basis for the Morgan, Farr, Quakenbush Educational Technology Act of 1991, which defined and funded School Based Educational Technology Grants, Model Technology Schools, California Technology Assistance Project, and the California Instructional Technology Clearinghouse. Since that time, two technology plans have been written but little or no action was taken to implement these plans. Like the 1991 Plan, a new technology action plan needs to be developed that directly informs legislation, policy, and program changes such as those mentioned in this memo.

Analysis of the Problem: Since 1991 California has not had the leadership needed to prepare, implement, and fund a comprehensive technology plan. However, Senator Torlakson successfully advocated a reauthorization of a number of key regional technology support activities with SB1637 in 2008. This legislation continues, through 2014, supporting services to districts such as staff development, grant writing and funding support, group buying power, support of electronic learning resources, and access to regional area network and infrastructure. E-Rate information dissemination and approval of technology plans is also supported by this legislation.

However, the categorical program flexibility provisions of recent state budgets has undermined the implementation of SB1637 in that with flex funding there is a lack of accountability to determine how the flexed technology funding is expended. There are no longer dedicated funds attached to SB1637 to deliver technology support services. Without a plan supported by data it will be difficult to justify to the legislature the allocation of limited funding for educational technology. A plan would also guide the implementation and evaluation of the programs, projects, and services suggested by the ETTF as well as any programs instituted and/or reauthorized by the Legislature in the future.

Proposed Solution Strategy: Develop an educational technology platform to guide both new legislation and development of a new California *Educational Technology Blueprint*. The plan should define the need for teacher support and professional development in the use of technology to improve teaching as well as topics covered by the other Task Force Working Groups such as: Before and After School Programs; Special Education; School Improvement; Assessment; Career Preparation/Vocational Education and each of the core subject areas. The plan would be informed by the recommendations of the Task Force as well as many other sources of data and information.

It is essential that the plan reflect lessons learned from past and current programs and resources as well as research on effective uses of technology in education. Also, it is important that the plan build upon effective existing educational technology programs of which there are many across the state.

At a minimum, the Plan should support the recently established California *Blueprint for Great Schools*, the Common Core State Standards, the California assessment system, and making state-of-the-art technology support available to all teachers so that they can use technology effectively with all students. This is an important prerequisite to making it possible to assure the success of "No Child Left Off-line"–as recommended by the *ETTF Infrastructure Working Group*.

The Plan should incorporate guidelines for the formative and summative evaluation of the extent to which it is implemented. An evaluation could be used to:

1) Document effective practices using technology,

2) Inform program improvements at the local, regional, and state levels,

3) Provide periodic reports to the Superintendent of Public Instruction regarding the level of implementation, factors that impede implementation, effective practices, and policy recommendations needed to improve the implementation of the Plan,

4) Provide data for a periodic memo to the State Legislature regarding the impact of legislation that relates to the implementation of the Plan, and

5) Provide data for a press release to the stakeholders of the plan to include, parents, professional education associations, and business.

Infrastructure Work Group Recommendations

I. Work Group: Infrastructure

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Topic

Propose specific recommendations to modernize the infrastructure across California's public schools in response to the State Superintendent's vision for "No Child Left Offline." This infrastructure will have the capacity to support student devices, offer safe and secure high-bandwidth connectivity; be governed by standardized technology policy intended to minimize restrictions for students and teachers, with clearly stated provisions to ensure all students' (on campus) Internet activity is monitored, to include student access to school portals and online resources outside and beyond the school day.

II. Context

The rapid and constant pace of technological change is creating great opportunities and significant challenges for California's public education system. For society, these opportunities include greater access to rich online content, widespread availability of wireless devices, and the expanding role of social networking tools for learning and communicating. At the core of these advancements is the technology infrastructure. The networks, hardware systems, appliances, and these innovative trends would not venture beyond the drawing board if it were not for the infrastructure, always on – always evolving.

Today our public schools cannot keep up with these technology trends and as a result their infrastructures have become outdated and underfunded. At the same time, school districts are asked to innovate using technology across their classrooms. These conditions are antithetical to one another and contribute directly to public schools' inability to embrace many of the basic technologies we enjoy at home every day.

Although some California schools are keeping up, many school infrastructures fall behind, even while California's students leap ahead in their everyday interaction with technology outside of school. At the same time, an increasing numbers of student and parents have the expectation that the same technology engaged at home will be available in the classroom.

There is broad consensus to support the notion that the benefits of adopting technology enabled learning far outweigh the challenges.[11] There is also a greater level of understanding by school officials that we have an opportunity to create a rich and rigorous curriculum, supported by a robust infrastructure.

We propose an infrastructure solution that makes available technology-enhanced learning environments for all students regardless of economic status or geography. Our recommendations propose a scalable infrastructure for California's public schools; one designed to reach every classroom and student and, efficient enough to actually reduce cost for our cash strapped education system.

III. Key Recommendations and Options

Recommendation 1: Every student has access to at least one Internet device for learning any time, any place; often called 1:1 or One-to-One.

Possibly the biggest challenge facing public education is the demand for personalized learning using technology. The increasing demand for customized and personal education to meet student's unique needs is driving the development of new technologies, specifically personal devices and online content capable of immediately addressing learner choice and control, while allowing for differentiated instruction. However, there remains a gap between the vision, the tools, and the infrastructure needed to move us ahead. Technology can and should support individual choices allowing students access to materials and expertise, and varying methods of teaching and learning. Providing California's students access to a network-connected device is one big step in the right direction.

Strategies to acquire student devices:

1. Establish partnerships between public education and manufacturers of personal devices. These partnerships can include state, county, and local master service agreements which allow schools to take advantage of significant discounts associated with commonly

[11] Project Tomorrow. 2012. http://www.tomorrow.org/speakup/index.html (accessed July 3, 2012).

purchased hardware and software products. Explore state contract law in this regard and partner with the California Association of School Business Officials.

2. Sponsor and support national/state policy intended to ensure every student equitable access to a device and affordable Internet access capitalizing on the momentum building around affordable broadband, digital textbooks and SBAC – Adaptive Assessments.

3. Support districts using a "Bring Your Own Device" or BYOD to supplement the available technology devices on a school campus. Consult with legal groups to develop model guidelines for districts wishing to utilize a BYOD program so that districts can design programs that support student learning but do not run afoul of the *Eliezer Williams, et al., vs. State of California, et al.* settlement or other instructional materials regulations.

4. Develop and implement a compelling awareness campaign intended to galvanize stakeholders including unions, community organizations and boards of education.

Recommendation 2: Every student in California will have guaranteed on-campus and home Internet access.

Providing students 24/7 network access is a top priority for the California K-12 infrastructure. Students and faculty must have the freedom and flexibility to engage content any time, any place with guaranteed connectivity to systems and applications.

Strategies to provide Internet access at every school and in every home:

- The state should work with school districts to define minimum standards for bandwidth at every school in California and work collaboratively on a plan to upgrade where needed. Focus funds available to the California K12 High Speed Network (K12HSN) on schools that are still unconnected or under-connected. Create a public/private partnership effort focused on connecting every school adequately based on these defined standards across the state regardless of geographic challenges.

- Support the development of scalable and flexible data center infrastructures capable of addressing changing requirements quickly and cost effectively. These structures can quickly provision public and private cloud services in support of e-mail communications, student information systems, business applications, and social learning applications.

- Continue to support the regionally managed service model capitalizing on economies of scale and infrastructure consolidation by leveraging County Offices of Education.

- Develop and support a system of sharing infrastructure best practices across the state.

- The state should work with technology industry representatives to help districts, county offices, and regional/state-wide service providers build requirements and analyze different strategies that effectively leverage cloud-computing. This analysis should

summarize cloud-computing options, the feasibility of different solutions, implications and cost analysis, along with recommendations for implementation.

- The state should work with districts to leverage existing student information systems and data that are increasingly utilized across multiple systems to improve student success. Currently, these systems are focused on teachers and administrators and their usage requirements. Student information systems act as portals for students and parents, data systems serve to inform and empower students on their own academic path, and the learning management system brings the "classroom" to students regardless of time and location. Guidance from the state is needed in matters of privacy, access, and security of data in these systems.

- Support and engage with the California Public Utilities Commission, the Federal Communications Commission, industry representatives and others on policy and programs that bring more affordable connections to schools and communities

- Explore public/private partnerships with Internet providers across the spectrum to establish discounted rates for families with school age children in the state of California. Monitor the work of the Federal Communications Commission in this regard so as to leverage national policy.

Rationale: According to the National Broadband plan 97 percent of schools and districts maintain Internet connectivity in the country. However, inadequate data speeds and infrastructure issues are common, and bandwidth demands are projected to rise dramatically over the next few years.[12]

In California, the K12HSN reports that there are still service gaps to some schools in the state. And after years of concentrated effort to connect all schools, we are about 10 percent behind the rest of the country. Some challenges are geographic and some are technological and a few are jurisdictional. Additionally, many schools are under-served and will need significant upgrades to meet projected bandwidth demands in the immediate future as students access high quality curriculum and statewide online assessments.

Access to collaboration tools through cloud-based applications like Google Apps for Education and Microsoft Office 365 are also projected to increase substantially. The proliferation of electronic learning opportunities combined with maturing technologies is rapidly taking learning beyond the traditional brick and mortar classroom. These conditions are creating an environment where students with access to broadband at home will have an even greater advantage over those students who can only access these resources at their public schools and libraries.

Reliance on a district owned and operated data center infrastructure is fast becoming a losing proposition. Budget reductions, staffing limitations, outdated policy and aging equipment requires districts to rethink their technology requirements against constricted budgets.

[12] Federal Communications Commission (FCC). 2010. *Connecting America: The National Broadband Plan*. http://www.broadband.gov (accessed May 15, 2012).

The state should explore a regional data center approach with integrated cloud-computing services that have a significant positive financial impact. According to the 2011 Horizon Report, the Kentucky Department of Education recently selected a cloud solution that provides its schools with tools for communication and collaboration. The estimated state savings is more than $6 million over the next four years.[13]

One California example is San Pasqual Union School District in San Diego County, which is utilizing a private cloud-computing environment to provide the district with affordable file storage, and single sign-on capability for educational applications, student information system, and administrative applications.

By adopting a managed service model, San Pasqual has reduced its technology budget dramatically while innovating easily through subscriber based private cloud resources provided through a regionalized service model offered by the San Diego County Office of Education (SDCOE). San Pasqual complemented the SDCOE services with additional public cloud resources provisioned by Google Apps for Education. San Pasqual uses Google Cloud service for email and Google Docs to access a suite of collaboration applications.

This regional data center/cloud service is currently replicated across 12 districts in San Diego County. Districts subscribing to SDCOE services have significantly reduced operating costs and improved service quality, while utilizing cutting edge technology with a direct impact on school operations and most importantly student achievement.

Several districts in California are taking advantage of recent FCC rulings allowing the use of E-Rate discounts to provide personal wireless hubs to students for home use. These devices, under certain geographic conditions, allow students to connect to the school network while at home without having to subscribe to a commercial provider at all. This is a boon for many families with school age children who cannot currently afford Internet connectivity at home and to the general public after school hours. This 2010 ruling by the FCC may not be as widely deployed in the state as it could be.[14]

These are only two examples of infrastructure solutions that could be communicated by the California Department of Education through a best practices project of some kind to help county offices of education and districts make better infrastructure and connectivity choices.

Recommendation 3: Develop guidance documents, policy statements and leadership capacity to support and implement No Child Left Offline.

Everyone can agree keeping our children safe online is our highest priority. Effective technology policy including content filtering is central to ensure online safety. Paradoxically these

[13] Johnson, L. Adams, S. and Haywood, K. (2011). The NMC Horizon Report: 2011 K-12 Edition. Austin, Texas: The New media Consortium. http://www.nmc.org/horizon-project/horizon-reports (accessed May 25, 2012).
[14] Federal Communication Commission Ruling, February 2010. http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-10-33A1.pdf (accessed May 15, 2012).

monitoring and filtering tools can also produce restrictions, which can far exceed the intention of online safety regulations, including the Child Internet Protection Act (CIPA).[15]

A. Guidance: We suggest that the California Department of Education review curriculum frameworks and adopt a definition of 21st century competencies (see Learning Work Group, Item C.) to reflect today's need for safe and appropriate use and access to online resources so that:

- Every student understands the ethical, cultural and societal issues related to technology and the dangers which exist;
- Every student practices responsible use of all technology systems, information, and software and agrees to terms and conditions of use;
- And every student develops positive attitudes toward technology applications that support lifelong learning, collaboration, personal pursuits, and productivity.

Currently the state has a *Model School Library Standards for California Schools* that begins to describe the new skills and issues associated with learning empowered by technology. Furthermore, it is important to note that the coming Common Core State Standards embed many technology skills in the acquisition of academic content. Clearer communication to the field is needed in this area.

B. Policy: Collaborate with the California School Boards Association and appropriate legal groups to develop and provide sample board policy statements to districts that assist in the safe deployment of technology in 1:1 environments.

C. Leadership: Due to the scale and complexity associated with No Child Left Offline and the implementation of technology in the education enterprise, we propose the establishment of a dedicated leadership role at the California Department of Education. This role should have an independent function and act as a member of the State Superintendent's cabinet. Reporting directly to the State Superintendent, responsibilities could include:

- Develop a strategic implementation plan for No Child Left Offline.
- Lead and coordinate respective California Department of Education resources and personnel to ensure No Child Left Offline is implemented.
- Be a resource to the Legislative staff at the Department on all education technology legislation.
- Collaborate closely with other government officials, commissions, community organizations including union officials and industry representatives to gain the required support.

[15] *Children's Internet Protection Act (CIPA),* Title XVII of the FY2001 Labor-HHS Appropriations Act, included in the FY2001 Consolidated Appropriations Act, Pub.L. No. 106-554 (2000). http://www.fcc.gov/guides/childrens-internet-protection-act (accessed May 10, 2012).

A combination of public support, practical policy, and legislation constitute some of the critical change agents required to evolve the state of technology in our public schools, if we are to realize the vision of No Child Left Offline.

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