

Redefining Teacher Education for Digital-Age Learners



A Call to Action

The Summary Report of the Invitational Summit on
Redefining Teacher Education for Digital-Age Learners

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A Call to Action

Public education in America is at a crossroads. The current system is too expensive to sustain and it does not consistently provide students with the skills they need to be responsible, contributing citizens in today's global community. There are many individual efforts aimed at reforming the educational system and there is broad recognition that changes in the educational system will require changes in the roles, knowledge, and skills of the educational workforce.

Many assert that the existing system of educator preparation is not developing teachers with the skills needed to enable their students to be successful in the 21st century.¹ In many ways, teacher educators are working with one foot in the future and the other in the past. Their graduates will serve the most digitally savvy, socially networked generation in history.² Today's youth have a clear vision of what a 21st century education should provide³ and already participate in online communities with a wealth of learning resources that extend far beyond the bounds of their schools⁴ and well beyond the limits of a single teacher's knowledge and skill. They will pursue careers in a globally integrated knowledge economy that rewards teamwork, continuous learning, and constant innovation. Yet teacher candidates continue to be immersed in antiquated preparation programs that equip them to deliver primarily traditional stand-alone, text-based instruction in self-contained classrooms.⁵

Several reports calling for teacher education reform are being released during the fall of 2010.⁶ But if all they do is to set higher benchmarks for *traditional* teaching, they will fall far short of the needs of digital-age learners. If schools of education and alternative education systems continue to prepare teachers for obsolete jobs in factory era schools, the future is already over.

By focusing only on teacher preparation, the nation risks losing sight of the fact that *schools also must change*.⁷ Schools must be transformed from teaching organizations into new kinds of learning spaces, and teachers must be trained in these new learning spaces so they are ready to work in the schools of the future.

To create the workforce demanded by the global knowledge economy, America must focus its resources on creating *new teachers for new schools*.⁸ To begin this process, schools of education must go beyond the present paradigm of teacher preparation. They must take on the exciting challenge of developing 21st century educators for 21st century schools. The time is right to *reinvent teacher education*.

“By almost any standard, many if not most of the nation’s 1,450 schools, colleges, and departments of education are doing a mediocre job of preparing teachers for the realities of the 21st century classroom. America’s university-based teacher preparation programs need revolutionary change—not evolutionary tinkering.”

—Arne Duncan, Speech at Teachers College, Columbia University, October 22, 2009.

Invitational Summit on Redefining Teacher Education for Digital-Age Learners

Teacher education is a complex system. Many contributors are involved, including state legislatures, state educational agencies and certification boards, national and regional accreditation associations, educational professional associations, teacher unions, teacher education institutions, universities, schools, and the federal government. Most of these stakeholders agree that teacher education must change to meet the needs of 21st century learners, but diverse policy contexts and a lack of shared vision among the stakeholders pose barriers to collaborative action to effect change.

“Leaders in the educator preparation field have a unique opportunity—and a profound obligation—to establish the vision for their programs that will result in a 21st century educator workforce that produces the student outcomes outlined in the Framework for 21st Century Skills Learning.”

—American Association of Colleges of Teacher Education (AACTE) Advisory Group and the Strategic Council of the Partnership for 21st Century Skills. *Educator Preparation and 21st Century Skills: A Blueprint for Change: An Initial Look at Key Principles*. Redefining Teacher Education for Digital-Age Learners Summit Paper.

In an effort to develop a shared vision for a true transformation of the teacher education system, over one hundred leaders from a cross section of teacher education constituency groups met at an invitational summit, *Redefining Teacher Education for Digital-Age Learners*,⁹ held December 6-8, 2009 in Austin, Texas. Their goal was to initiate a national dialogue on how to develop educators who can prepare students for success in 21st century colleges, careers, and civic affairs. The summit participants concluded that, although there are individual islands of innovation and excellence in educator professional development,¹⁰ *concerted and coordinated action by all stakeholder groups is needed to take these innovations to scale*. During the summit, the leaders worked intensely, both in small groups and as a whole, to

- Identify the characteristics of a true 21st century educator
- Define the critical elements of an educator preparation program that produces such a teacher
- Identify the institutional, state, and national policy structures that support the creation of these programs
- Develop a national coalition to reinvent teacher education for digital-age learners to identify and resolve challenges to this transformation, and seize opportunities resulting from these challenges

The participants recognized that schools of education and alternative teacher preparation programs must evolve into agile learning organizations staffed by 21st century educators who adapt their practices to a rapidly changing global society. Such changes will require new supporting policies at the institutional, state, and national level.

21st Century Teacher Characteristics

The Summit participants indicated that today's students need educators who have the knowledge and skill to facilitate their participation in a collaborative, Web-based learning culture.¹¹ They need teachers who know how to create a learning culture that looks and functions like the real and virtual workspaces of today. Equally important, they need educators who can join forces with their colleagues and communities to transform their schools from teaching organizations into genuine learning organizations. Such teachers would be able to

- **Facilitate and inspire student learning and creativity so that all students achieve in the global society.**¹² Teachers must engage today's digital-age learners if they are to meet the goals of producing the highest percentage of college graduates in the world by 2020 and closing the achievement gap, so that all students graduate from high school ready to succeed in college and careers.
- **Enable students to maximize the potential of their formal and informal learning experiences.** Teachers will work within a technology-empowered learning ecology and must know how to help students orchestrate the resources of this new learning environment to meet their individual learning needs.
- **Facilitate learning in multiple modalities.** In an open learning ecology, teachers must embrace a greater diversity of spaces, times, resources, media, and methods for learning. Twenty-first century learning environments are synchronous and asynchronous, face-to-face and virtual, local and global. The rapid growth of virtual high schools and courses underscores the need for teachers with the skills to teach both in classrooms and online environments.^{13,14}
- **Work as effective members of learning teams.** Teachers will be part of learning teams with a wide range of knowledge and skills, whose expertise is orchestrated to improve learning.¹⁵ Teams consisting of novice and accomplished educators, students, and subject matter experts in the community will collaborate in a blend of face-to-face and online learning that turns schools into hubs in a networked learning ecology.
- **Use the full range of digital-age learning tools to improve student engagement and achievement.** Teachers will draw on digital technology to customize learning activities for individual student needs. They will contribute to the continued evolution of these tools and continuously develop their knowledge of how to use them to improve learning.
- **Work with their students to co-create new learning opportunities.** Teachers must respect their students' abilities to contribute to the work of their learning team; they need to encourage divergent inquiry that goes beyond compliance with monolithic learning standards.

- **Use student data to support student learning and program improvement.** Teachers will know how to collect and interpret student assessment data to enhance and improve teaching effectiveness, school performance, and student growth.¹⁶
- **Be lifelong learners.** Teachers must continuously engage in formal and informal professional development to upgrade their skills in a rapidly evolving knowledge- and technology-based global society.
- **Be global educators.** Teachers must empower their students to live and work successfully in a globally integrated community. They must engage their students in learning opportunities that extend the boundaries of the classroom and consistently place knowledge acquisition and skill development in a global context.¹⁷
- **Work with policy leaders as change agents.** Teachers should communicate established research-based education principles to colleagues, parents, and society at large to continuously improve the educational system.

Redefining the Teacher Education Framework

In order to produce teachers with the above characteristics, *it is necessary to transform schools of education into 21st century learning organizations staffed by teacher educators who themselves manifest the characteristics of 21st century teachers.* To make this possible, the Summit participants concluded that a digital-age educator development framework must

- **Model and advocate 21st century teaching practices and integrate them into the curriculum and instruction.** The learning and neurosciences have compiled an extensive body of knowledge about how people learn.¹⁸ Teacher education must integrate and model research-based pedagogical practices and learning environments throughout the preservice teacher’s academic instruction and field experiences.
- **Be a university-wide endeavor.** Twenty-first century pedagogies and technologies—such as collaborative, cross-disciplinary, and inquiry-based learning projects—must extend beyond the professional education courses to include all content and general education courses.¹⁹ Teachers must be prepared to effectively couple the most appropriate technological tools, pedagogical strategies, and discipline-based inquiry strategies to help their students learn.
- **Extend the curriculum to include informal learning.** Teacher candidates must experience a wide variety of learning environments, both formal and informal, with children of varying social, ethnic, and cultural backgrounds. Prospective teachers need experience working with and observing children learning in non-school environments, such as after-school programs, enrichment programs, and community organizations. These experiences help the prospective teacher develop a clearer

picture of how young people engage in socially networked informal learning, collaborative inquiry, and problem solving.²⁰

- **Prepare teachers to teach in online and blended learning environments.** Virtual schools, online courses, and blended learning environments (face-to-face and online) have grown exponentially across the country in recent years and this trend will continue well into the future.²¹ Few, however, are learning to teach online classes.²² Twenty-first century educators must get training and experience in online and blended learning environments as part of their educator development programs so that they master the skills to teach in such environments.²³
- **Occur in learning teams.** Educator development programs must model technology-supported learning communities of peers, faculty, and mentor teachers throughout preservice teachers' academic and clinical experiences. Future teachers need sustained clinical experience²⁴ working in learning teams as they progress through their internship and residency experiences.²⁵ Much like medical interns and residents, preservice teachers need to learn and demonstrate their competence under the direct supervision of master teachers, while working in schools that serve diverse students. Field experiences throughout the teacher education program must be a natural extension of coursework, so that students learn to easily and accurately translate knowledge into action.
- **Provide simulations.** In addition to real-world learning challenges that should be central to educator development field experiences, richly contextualized simulated environments will allow teacher candidates to encounter and respond to difficult situations in collaboration with their colleagues. Simulations of well-focused problems can expose candidates to the expertise of diverse practitioners, and have been used with considerable success in training in the military, medicine,²⁶ and law.
- **Model strategies for addressing the needs of all learners.** Future educators must work in learning teams whose members collectively possess a fundamental knowledge of brain-based learning, multiple intelligences, special education law, universal design, and other evidenced-based approaches that are helpful in adapting the curriculum to meet the needs of varied learners.
- **Prepare educators to interpret and utilize data to customize instruction.** Teachers must be comfortable and competent using analytical tools in contemporary data systems to better understand the progress and needs of their students and to determine the most appropriate instructional responses.²⁷ Preparation programs need to provide extensive practice in the use of contemporary

“The exponential increase in online learning in both regular and virtual classrooms is driving the need to incorporate new pedagogical content knowledge and strategies in preservice and inservice teacher education. Compared to many countries, the United States is behind in preparing K-12 teachers to teach online. Very few teacher education programs in the U.S. offer a curriculum for online teaching, leaving districts, states, and virtual schools to train online teachers.”

—Susan Patrick and Lisa Dawley. *Redefining Teacher Education: K-12 Online-Blended Learning and Virtual Schools*. Redefining Teacher Education for Digital-Age Learners Summit Paper.

instructional data systems.²⁸ In addition, educator development programs must embrace, demonstrate, and model assessment as an integrated and continual process throughout the program. An updated definition of “Student Performance” that reflects 21st century skills and knowledge is critical to this element.

- **Be responsive to changes in the global society.** Today’s teacher educators must prepare their students to enter classrooms that will likely change more in the coming decade than they have in the preceding century. Exposing future educators to cutting edge technologies, individualized pedagogical strategies, advanced data systems, and new educational policies will prepare them to work effectively in an environment that is rapidly evolving. Educator development frameworks must be responsive to the accelerating changes in global society and ready to quickly shed outdated policies, curricula, and practices to embrace new and more effective approaches that address the needs of 21st century learners.²⁹

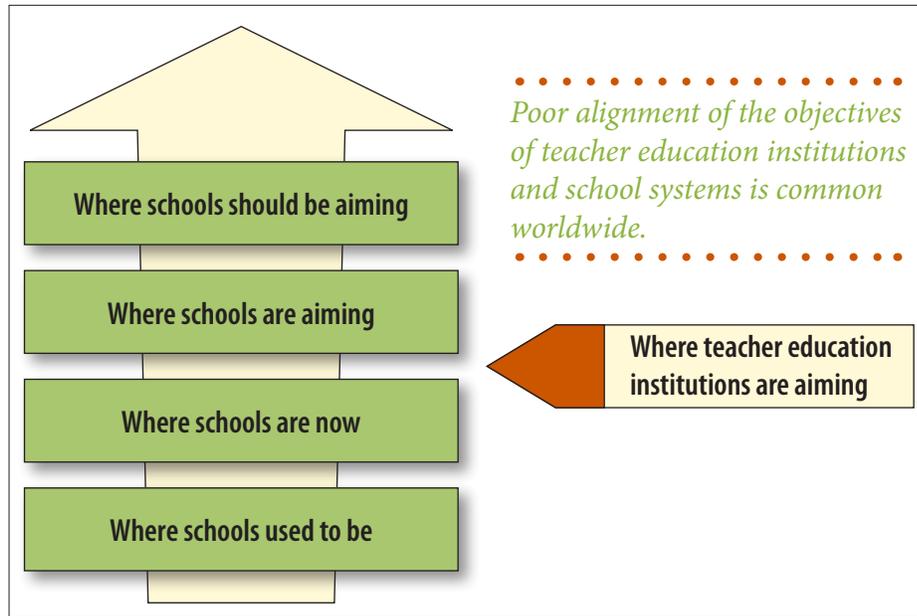
“As we move into an era when colleges of education will be held accountable for the effectiveness of their graduates...personal learning networks [can] provide ongoing support once their graduates enter the workforce.”

—Office of Educational Technology, U.S. Department of Education. (2010) *Transforming American Education: Learning Powered by Technology*. National Educational Technology Plan.

- **Prepare teachers for career-long professional growth.** Learning communities and personal networks established during the preparation program must be sustained so that teachers are supported during their novice teaching years and throughout their professional careers. Educator development programs need to provide graduates with online support and mentoring during their induction years. They should remain connected with their graduates throughout their careers via online networks that provide access to new research-based teaching practices and resources.³⁰ These programs should foster and sustain “personal learning networks” that promote on-line professional communities of practice.

Institutional Policies to Transform Teacher Education

Moving educational systems into the 21st century will require unprecedented collaboration among teacher education institutions and school systems. This represents a significant challenge, however, because a lack of alignment between the objectives of teacher education institutions and school systems is a common issue worldwide,³¹ as illustrated in the figure on the next page. The transformation of teacher education into a 21st century educator development system will require leadership and changes in legacy policies in higher education institutions.³² A critical element of a 21st century educator development program must be that its faculty model digital-age teaching and learning. This will require extensive faculty development, research, leadership, and engagement, and must become a leadership priority at every institution that develops educators. The development of 21st century educators must become a national priority on an equal footing with the preparation of state-of-art healthcare professionals. Summit participants indicated that *university-wide collaboration is key to the transformational redesign of teacher education programs* and this transformation will require the following actions and policies:



Stephen Jury. *Redefining Teacher Education for Digital-Age Learners Summit, Keynote Address.*

- **Faculty Development.** A new faculty development protocol must be devised for building the capacity and enhancing the skills and knowledge of teacher education faculty in the applications of digital learning technology,³³ including online teaching, blended learning environments, and best practices based on current learning science research. Faculty must be given the time and support they need to become effective members of a collaborative learning culture of connected teachers.
- **Faculty Research, Innovation, and Leadership.** Incentives and rewards must be provided to faculty who conduct and apply research on new digital learning technologies in their disciplinary areas. Research support should be expanded to encourage the development of new applications of digital learning tools and the creation and sharing of evidence-based best practices.
- **Faculty Engagement in Clinical Practice.** Universities must place a higher value on the clinical practice of faculty when making promotion and tenure decisions. University policies need to encourage teacher educators to be extensively involved in clinical settings and practice.³⁴
- **Competency-Based Teacher Education Programs.** Developing 21st century educators requires replacing time-based learning standards with competency-based standards.³⁵ Digital-age educators need to demonstrate essential competencies that include deep knowledge of content areas as well as the effective use of technology tools, pedagogical strategies, and the ability to interpret and use data to address the individual needs of students. This must include demonstrated on-line teaching competency and effective participation in learning teams working in blended learning environments. The Western Governors University (WGU) Teachers College provides a model of a competency-based teacher education, in which degrees are awarded on the basis of the completion of assessments aligned to all

state and national curriculum standards.³⁶ Teacher technology competencies have been developed by the United Nations Educational, Scientific, and Cultural Organization (UNESCO) in partnership with leading educational and technology organizations, including the International Society for Technology in Education (ISTE), Microsoft, Virginia Tech, Cisco, and Intel.³⁷ Such approaches must become the basis for a national competency-based professional development protocol for both preservice and in-service teachers.

State and National Policies to Support a 21st Century Teacher Education Framework

To a large extent, teacher education programs are shaped by external factors, which include, but are not limited to

- The institutional, state, and regional contexts in which they operate
- State certification guidelines
- Professional and regional accreditation agencies
- Professional associations, especially those impacting curriculum development
- Emerging Common Core State Standards
- Institutional policies and procedures, such as general education requirements

Contemporary teacher development programs also must be responsive to the dynamic and fluid societal contexts in which they operate. These contexts include family, community, workforce, and global learning environments.

Educator development programs must strike a balance among the forces in this complex environment as they work to transform themselves into 21st century learning organizations. National and state leaders have a collective responsibility to make this possible. They must balance a culture of compliance and regulation with an investment in capacity building and empowerment that prepares educators who can prepare students to succeed in 21st century college, careers, and civic affairs.³⁸

State Level Policies

Summit participants believe state agencies will play a major role in the efforts to transform educator preparation; whether it is one of facilitating or impeding these efforts is the key question.³⁹ State policies must be changed or developed in the following ways to support a 21st century teacher education framework:

- **Develop a shared vision of educator development within each state.** Since much of the control and many of the forces affecting teacher education are at the state level, it is essential that states bring constituencies together to develop a shared vision of educator development. Many stakeholders play key roles developing policies, so the new vision must be a joint effort between teacher unions, state associations of school boards, central office administrators, principals, special edu-

cation administrators, state postsecondary education commissions, and other key organizations. Building such a consensus on redefining educator development is already happening in a few states, and it is in advanced stages in New Hampshire, where they have hosted a statewide summit,⁴⁰ resulting in many new initiatives.

- **State leadership must enable educators to hold themselves professionally accountable for effectively preparing digital-age learners for college, careers, and civic engagement.** Under various American Recovery and Reinvestment Act (ARRA)⁴¹ funding programs, state education agencies are now required to gather and use data that links the learning results of all students to their P-12 educators as well as to their schools and districts. These new accountability provisions also link the learning results data to the preparation programs from which the P-12 educators graduated. The Summit participants strongly believe that traditional standardized test scores cannot be the sole or primary measure of student learning. It is essential that states support the design of accountability systems that move from a culture of compliance to a *culture of performance*. These systems must not unintentionally discourage preparation programs from sending their graduates to high-needs schools by holding them accountable for the learning gains of at-risk students without the support they need to succeed. State accountability systems also need to support performance assessments of teacher competencies and classroom practice multiple times throughout the school year, drawing on a wide variety of data. These may include classroom observation, lesson plans, peer-to-peer observation, and video recordings of instruction, along with student outcome measures such as college-ready measures, graduation rates, and number of students successful in courses.
- **States' educator certification policies must support new roles for educators and new ways of staffing schools.** Schools need educators who facilitate learning rather than deliver educational content, and certification standards must address this challenge. Additionally, for schools to deploy learning teams composed of educators that cross the full range of experience and competency levels, states need to develop competency-based assessments that differentiate between beginning, experienced, and master educators and mentors, and among other key learning team roles.
- **Teacher education program approval in states must foster transformation to digital-age educator development.** Approval policies at the state level should proactively promote continuous program improvement and move toward competency-based curricula. Programs should provide evidence of
 - Organization-wide collaboration and responsibility in teacher education
 - Educator development experiences in schools that use research-based practices, address 21st century skills, and effectively employ digital learning technology
 - Experiences in informal learning situations, such as museums and community centers

The programs should also provide evidence that teachers have the knowledge and skills to teach in both online and blended learning environments and are able to use achievement and other assessment data to address the individual needs of students.

Program approval policies must also recognize the value of faculty engagement in clinical collaborations and partnerships with schools.⁴² Currently, university promotion and tenure policies, with their emphasis on publications, often discourage faculty from intensive involvement with the schools. Program approval policies must encourage higher education institutions to value clinical participation as an important criterion for promotion and tenure.

National Level Policies

Summit participants believe the following national policies and initiatives will help states create a 21st century teacher education workforce:

- **Create a national coalition to reinvent teacher education for digital-age learners.** Several national organizations representing constituency groups with specific interests are currently working on separate efforts to reimagine teacher education.

It is time for them to join forces in an effort that should not begin with the redesign of teacher preparation, but rather with the reinvention of the teaching role itself. Once these groups have developed a clear understanding of a 21st century educator's job, they can take up the challenge of creating a development system for digital-age educators.

“Education is in flux and where it ends up depends on the decisions society makes.... To be effective in this changing environment requires that the builders of the new education system understand the imperatives of the technologies driving the changes in education.”

—Allan Collins and Richard Halverson.
Rethinking Education in the Age of Technology. Redefining Teacher Education for Digital-Age Learners Summit Paper.

- **Establish common national competency standards for digital-age educators.** This is the next logical step to the Common Core State Standards. Common national competency standards must address 21st century skills and be informed by existing standards such as the UNESCO Competency Framework for Teachers,⁴³ the ISTE National Education Standards for Teachers,⁴⁴ and the International Association for K-12 Online Learning (iNACOL) Standards.⁴⁵ The competency standards need to reward continuous improvement, dynamism, and evidence of responsiveness to changing conditions.

Common national competency standards would eliminate issues caused by varying degrees of support from states and local entities for the changes needed to prepare educators across the United States for 21st century learning. Common competency standards will ensure state-to-state reciprocity.

- **Build a National Educator Competency Development Hub (*The Hub*) with support from the U.S. Department of Education.** The Hub would be an online tool to diagnose, assess, and track individual teacher competencies and tailor ongoing professional development plans based on individual needs. The Hub would offer a variety of learning options from various providers to develop educator competencies, tap into experts and best practices for just-in-time learning and problem

solving, and provide platforms and tools to help educators design and develop resources and share them with colleagues. The goals of The Hub—to make professional learning timely, relevant, and an ongoing activity that continually improves practice—are consistent with similar goals stated in the National Educational Technology Plan.⁴⁶

- **The U.S. Department of Education and other federal agencies should support research to improve online educator professional development.** Online professional development can take place “anytime, anywhere,” necessitating new research approaches to identify critical factors for effective online professional development. The federal government should increase support for such research through competitive grants.
- **Congress should fund the \$50 million *Preparing Teachers for Digital-Age Learners* (PTDAL) Program⁴⁷ to ensure that teachers are prepared to use technology to create open, dynamic, and responsive learning environments.** The PTDAL program would provide funding on a competitive basis for innovative grants to institutions of higher education that would ensure that America has the most technologically savvy educator workforce in the world.
- **The Elementary and Secondary Education Act⁴⁸ (ESEA) Reauthorization should be a catalyst to create a 21st century education workforce that can meet the needs of digital-age learners.** Highly effective teachers must have the skills to use modern information tools and digital content to support individualized learning paths in formal and informal learning environments.

A First Step toward Transformation

The recommendations in this report reflect the shared views of Summit participants, who have concluded that *transformational changes are needed in teacher education* to move the public education system into the 21st century. Summit participants believe the nation must not engage in protracted discourse about moving education beyond the industrial age. The U.S. is rapidly falling behind as nations around the world race to move their educational systems into the 21st century. It is time for the nation’s educators to build pathways to the future of digital-age teaching and learning. With the recommendations presented in this report, the Summit participants are taking the first step toward launching this transformation. Concerted action by all the constituent organizations represented by Summit participants will be necessary to effect such momentous change. But the effort must and can be made. The urgency is great and the time to act is now.

Leadership for Invitational Summit on Redefining Teacher Education for Digital-Age Learners

The Invitational Summit was the work of a distinguished group of educational leaders and organizations representing a broad spectrum of perspectives and stakeholder groups.

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Association of Teacher Educators (ATE)
Consortium for School Networking (CoSN)
Council of Chief State School Officers (CCSSO)
International Association for K-12 Online Learning (iNACOL)
International Society for Technology in Education (ISTE)
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Endnotes

- 1 Education Week (2009). *Duncan to reiterate criticisms of teacher education*. http://blogs.edweek.org/edweek/teacherbeat/2009/10/duncan_to_reiterate_criticisms.html (accessed June 30, 2010).
- 2 Roberts, D., Foehr, U., & Rideout, V. (2010). *Generation M2: Media in the Lives of 8 to 18-Year-Olds*. Kaiser Family Foundation
- 3 Project Tomorrow (2010). *Creating Our Future: Students Speak Up about their Vision for 21st Century Learning*. <http://www.tomorrow.org/speakup/pdfs/SU09NationalFindingsStudents&Parents.pdf> (Accessed August 10, 2010)
- 4 Collins, A. & Halverson, R. (2009) *Rethinking Education in the Age of Technology*. Redefining Teacher Education for Digital-Age Learners Summit Paper.
- 5 Levine, A. (2006). *Educating School Teachers*. The Education Schools Project. Washington, DC.
- 6 American Association of Colleges of Teacher Education (AACTE) and the Partnership for 21st Century Skills (P21) (2010). *Educator Preparation: A Vision for the 21st Century*.
- 7 Wehling, B. (2007). *Building a 21st Century U.S. Education System*. National Commission on Teaching and America's Future.
- 8 Carroll, T. & Fulton, K. (2009). *To Create 21st Century Schools, We Need a 21st Century Education Workforce*. National Commission on Teaching and America's Future. Redefining Teacher Education for Digital-Age Learners Summit Paper.
- 9 Learning Technology Center. The University of Texas at Austin (2010). *Redefining Teacher Education for Digital-Age Learners*. <http://www.redefineteachered.org>. (Accessed July 30, 2010)
- 10 Darling-Hammond, L. (2006). *Powerful Teacher Education: Lessons from Exemplary Programs*. San Francisco: John Wiley & Sons.
- 11 Bosco, J. (2009). *Web 2.0 in Schools: Status, Issues, Prospects*. CoSN Web 2.0 in Schools: Policy & Leadership Initiative. Consortium of School Networking. Redefining Teacher Education for Digital-Age Learners Summit Paper.
- 12 Ala-Mutka, K., Punie, Y., & Redecker, C. (2008). *ICT for Learning, Innovation and Creativity: Policy Brief*. JRC European Commission.
- 13 International Association for K-12 Online Learning (iNACOL) (2010). *National Standards for Quality Online Teaching*.
- 14 Patrick, S. & Dawley, L. (2009). *Redefining Teacher Education: K-12 Online-Blended Learning and Virtual Schools*. International Association for K-12 Online Learning. Redefining Teacher Education for Digital-Age Learners Summit Paper.
- 15 Carroll, T., Fulton, K., & Doer, H. (Eds.) (2010). *Team Up for 21st Century Teaching and Learning: What Research and Practice Reveal About Professional Learning*. National Commission on Teaching and America's Future (NCTAF).
- 16 National Center for Educational Evaluation and Regional Assistance, U.S. Department of Education (2009). *Using Student Achievement Data to Support Instructional Decision Making*.
- 17 Trilling, B. & Fadel, C. (2009). *21st Century Skills: Learning for Life in Our Times*. Hoboken, NJ: Jossey-Bass
- 18 Bransford, J., Brown, A., & Cocking, R. (2000). *How People Learn: Brain, Mind, Experience, and School*. National Academies Press. Washington, DC.
- 19 Economist Intelligence Unit (2008). *The Future of Higher Education: How Technology Will Shape Learning*. The Economist.
- 20 Knezek, G., Christensen, R., & Tyler-Wood, T. (2009). *Addressing the Needs of Digital Age Learners*. University of North Texas; Society for Information Technology & Teacher Education (SITE) Redefining Teacher Education for Digital-Age Learners Summit Paper.
- 21 Alliance for Excellent Education Issue Brief (2010). *The Online Learning Imperative: A Solution to Three Looming Crises in Education*.
- 22 Project Tomorrow (2010). *Learning in the 21st Century: 2010 Trends Update*. http://www.tomorrow.org/speakup/learning21Report_2010_Update.html (Accessed August 12, 2010)
- 23 Southern Regional Education Board Educational Technology Cooperative (2009). *Guidelines for Professional Development of Online Teachers*.
- 24 American Association of Colleges for Teacher Education (2010). *The Clinical Preparation of Teachers: A Policy Brief*.
- 25 MetLife (2009). *The MetLife Survey of the American Teacher: Collaborating for Student Success*.
- 26 Hansen, M. (2008). Versatile, Immersive, Creative and Dynamic Virtual 3-D Healthcare Learning Environments: A Review of the Literature. *Journal of Medical Internet Research* 2008; 10(3)

- 27 Kowalski, P. (2009). *Building the Capacity of Educators to Use Data for Effective Decision Making. Redefining Teacher Education for Digital Age Learners*. Data Quality Campaign. Redefining Teacher Education for Digital-Age Learners Summit Paper.
- 28 Marsh, J., Pane, J., & Hamilton, L. (2008). *Making Sense of Data-Driven Decision Making in Education*. Rand Corporation Occasional Paper.
- 29 National Education Association (NEA) (2010). *Global Competence is a 21st Century Imperative*. NEA Policy Brief.
- 30 Wei, R., & Hammond. L. (2010). *Professional Development in the United States: Trends and Challenges*. National Staff Development Council.
- 31 Jury, S. (2009). *The Future of Technology in Education*. Keynote at Invitational Summit on Redefining Teacher Education for Digital-Age Learners. December 6, 2009.
- 32 Wehling, B. (2007). *Building a 21st Century U.S. Education System*. National Commission on Teaching and America's Future.
- 33 Lim, C. & Chai, C. (2010). *Leading ICT in Education Practices : A Capacity-Building Toolkit for Teacher Education Institutions in the Asia-Pacific*. Singapore : Microsoft Partners-in-Learning (Asia-Pacific).
- 34 American Association of Colleges for Teacher Education (2010). *Teacher Educators: Strong Clinical Preparation is Imperative to Improve Schools, Boost Teacher Quality*. http://aacte.org/index.php?id=1108&option=com_content&view=article (Accessed July 29, 2010)
- 35 Cibullka, J. (2009). *A Vision for Educator Preparation: Charting the Course for Excellence, Innovation and Impact*. Keynote at Invitational Summit on Redefining Teacher Education for Digital-Age Learners. December 7, 2009.
- 36 U.S. News and World Report (2010). *Western Governors University – Best Colleges 2011*. <http://colleges.usnews.rankingsandreviews.com/best-colleges/salt-lake-city-ut/western-governors-university-33394> (Accessed Sept. 5, 2010)
- 37 UNESCO (2009). *ICT Competency Standards for Teachers: Competency Standards Modules*. Paris: UNESCO 2008.
- 38 CCSO and National Governors Association. (2010). *Common Core State Standards Initiative*. <http://www.corestandards.org> (Accessed August 28, 2010)
- 39 McLaughlin, R. (2009). *Briefing Paper on State Policy Challenges*. New Hampshire Department of Education. Redefining Teacher Education for Digital-Age Learners Summit Paper.
- 40 New Hampshire Department of Education (2010). *NH Summit: Redefining Educator Development for 21st Century Learners*. <http://www.education.nh.gov/news/summit.htm> (Accessed Jul29, 2010)
- 41 U.S. Government Printing Office (2009). *Public Law 111-5- American Recovery and Reinvestment Act of 2009*. <http://www.gpo.gov/fdsys/pkg/PLAW-111publ5/content-detail.html> (Accessed August 14, 2010)
- 42 National Comprehensive Center for Teacher Quality (2009). *Teaching as a Clinical Practice Profession*. Issue Brief, March 2009.
- 43 UNESCO (2009). *ICT Competency Standards for Teachers: Policy Framework*. Paris: UNESCO.
- 44 International Society for Technology in Education (2008). *NETS for Teachers*. http://www.iste.org/Content/NavigationMenu/NETS/ForTeachers/NETS_for_Teachers.html (Accessed August 20, 2010)
- 45 INACOL (2010). *National Standards of Quality for Online Courses*. <http://www.inacol.org/research/national-standards> (Accessed August 20, 2010)
- 46 Office of Educational Technology, U.S. Department of Education (2010). *Transforming American Education: Learning Powered by Technology. National Educational Technology Plan 2010*.
- 47 U.S. Congress (2008). *H.R. 5848 - Preparing Teachers for Digital Age Learners* <http://www.theorator.com/bills110/text/hr5848.html> (Accessed August 20, 2010)
- 48 U.S. Department of Education (2010). *Elementary and Secondary Education - Reauthorization of the Elementary and Secondary Education Act* <http://www2.ed.gov/policy/elsec/leg/blueprint/index.html> (Accessed August 20, 2010)

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