

Born in Another Time

**Ensuring
Educational
Technology Meets
the Needs of
Students Today —
and Tomorrow**



Summary and Recommendations

**The Report of the NASBE Study Group on the
Role of Technology in Schools and Communities**

Study Group Membership

(all are members of state boards of education unless otherwise indicated)

Nancy Perkins, Chair (ME)
 Leslie Castle (UT)
 Craig Coleman (UT)
 Lynda Doyle (ME)
 Vinni Hall (IL)
 Donna Johnson (DE), *Board Executive Director*
 Lowell Johnson (WV)
 Lanita Koster (IL)
 Dana Mann-Tavegia (WY)
 Kenneth Mason (GA)
 Sean-Marie Oller (VT)
 Paul Pineda (GU)
 Mat Santos (RI)
 Angelika Schroeder (CO)
 Winsome Sears (VA)
 John Seiler (NE)
 Madhu Sidhu (MD)
 Russ Still (MO)
 William White (WV)

Ex Officio Members

Peggy M. Siegel, *Education Free Agent, Consultant*
 Bryan Bleil, *VP, Online and Technology Implementation, Pearson*

NASBE Staff

Whitney Meagher, *Project Director*
 Elizabeth Ross, *Interim Project Director*
 Chris Sun, *Senior Project Associate*

Also Assisting:

David Kysilko, *Director of Publications*
 Steve Berlin, *Senior Communications Manager*
 Kimberly Charis, *Project Associate*

Presenters to the Study Group

January 2012 Meeting

Bob Wise, *President, Alliance for Excellent Education*
 Frank Gallagher, *Executive Director, Cable in the Classroom*
 Helen Morris, *Vice Chair, Alexandria, Virginia School Board*
 Julie Wray, *Coordinator of Instructional Technology, Howard County Public Schools, Maryland*
 Brandon Honza, *Teacher, Fulton Elementary/Clemens Crossing Elementary, Howard County Public Schools, Maryland*
 Lynne Schrum, *Professor, College of Education, George Mason University*

March 2012 Meeting

Richard Culatta, *Deputy Director Office of Educational Technology, U.S. Department of Education*
 Noelle Ellerson, *Assistant Director, Policy Analysis and Advocacy, American Association of School Administrators*
 Bob Farrace, *Senior Director for Communications and Development, National Association of Secondary School Principals*
 Patrick Ledesma, *Fairfax County Public Schools, National Board Certified Teacher and U.S. Department of Education Teacher Ambassador*
 Cory Linton, *Vice President, School Improvement Network*
 David Byer, *Senior Manager, Education Leadership and Policy, Apple Inc.*
 Emily Esch, *Director of Education Marketing, Common Sense Media*
 Mike Lorio, *Education General Manager, Common Sense Media*

June 2012 Meeting

David Teeter, *Director of Policy, International Association for K-12 Online Learning (iNACOL)*
 Doug Levin, *Executive Director, State Educational Technology Directors Association (SETDA)*

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Ensuring Educational Technology Meets the Needs of Students Today—and Tomorrow

Summary and Recommendations

“Do not confine your children to your own learning, for they were born in another time.”

—Hebrew Proverb

Innovative technologies—from smartphones and smart TVs to iPads and even Leap Pads for preschoolers—have launched our children into a digital age, a period in which the average teenager texts 60 times every day, a large majority of teens have a social networking site, and the combined use of media by students averages 6.5 to nearly 10 hours daily, much of it in a multi-tasking environment. This generation of students truly has been born in a time very different from that of their parents, school board members, principals, and most of their teachers.

For educators and policymakers, one of the keys for effectively responding to this generation is remembering that educational technology is both a tool and a game changer. As digital influences expand and their effects on students’ lives increases, some of students’ fundamental educational experiences change as well. And as is true of any transformative era, this changing world that includes instant communication and access to information, open source instructional materials, personalized learning plans, and online learning provides both abundant opportunities and challenges to teachers and administrators. It also presents challenges to state boards of education, whose policy decisions made for a digital environment will deeply affect teaching and learning and impact more than simply what happens in school buildings.

To address these challenges, NASBE’s Board of Directors charged the 2012 Study Group on the Role of Technology in Schools and Communities with examining how our digital age has affected the learning needs of today’s students, and how state boards can ensure that their schools are fully prepared to address the impact of rapid technological change on the fundamental processes of teaching

and learning. The Study Group was also asked to analyze how the issues around educational technology intersect with other reforms being undertaken by school systems, including the Common Core and other college- and career-ready standards, the emergence of robust data systems, the upcoming next-generation assessments, the burgeoning number of virtual courses and schools, and efforts to address digital bullying and other aspects of the social and emotional health of students.

In organizing its work, the Study Group framed its findings and recommendations around three areas:

- Addressing the Voice and Needs of Today’s Students;
- Ensuring Educators Can Use Technology in Meeting the Needs of Today’s Students; and
- Building Educational Technology Infrastructure: Preparing for Technology of the Future.

These areas make up the three main chapters of the report, and the key takeaways and recommendations from these chapters are summarized below. But there is one other overarching point about which the Study Group was very clear: state boards of education along with their state education agencies are key to providing the leadership on education technology issues our school systems need to ensure students are ready for life and work in a digital era.

Many forces are at work today that make such state leadership essential, including the primacy of state responsibility for education, the need for interstate collaboration around a host of technology and other issues, the growth and reach of statewide data systems, and the importance of broad-scale educator training and support related to technology.

There is also a disruptive factor in technology because of its continuing role in transforming so much of education

as we have known it. Later in this report, we reference the “wild, wild West” nature of the current landscape around educational technology. From virtual schools and online courses to the growing use of personal digital devices in schools and open-source instructional materials, much about technology is still in flux. Because of their formal responsibilities, state education systems are the only entities able to offer a sustainable platform for aligning these promising—but still fragmented and rapidly changing—forces. As Gov. Bob Wise, president of the Alliance for Excellent Education, told the Study Group:

State boards will be at the center of the education conversation on the role of technology in improving student learning throughout the next three years.... We must have a strategy and plan.

Gov. Wise also noted that the vital components of such a strategic plan are still in question—which only increases the urgency around such work. Fortunately, state boards are positioned to provide the unifying vision for the many aspects of the education technology landscape, a vision that identifies the intersection of student learning needs, teaching, and the infrastructure needed to undergird this teaching and learning. Without such a broad purposeful approach, education systems are likely to pursue a fragmented course that merely addresses individual policy issues as they happen to arise—and states will miss a critical opportunity to comprehensively move teaching and learning forward in support of this, and the next, generation of students.

CHAPTER 1. Addressing the Voice and Needs of Today’s Students

Much has been written about the cohort of students in school today, who are generally considered digital natives. Commentators frequently point out how these children have always lived with computers in their homes, cell phones in everyone’s pocket, and hundreds of channels available on their televisions. They easily adapt to every new piece of technology that arrives in the marketplace and can text as easily and quickly as adults can talk. They are constantly “plugged in.” For this generation, there is no divide between “technology” and their daily lives.

Today the combination of immense portable computing power, digital communications, and the Internet presents education with an enormous number of opportunities, challenges, and imperatives. There is the imperative, for

- 77% of 12- to 17-year-olds own cell phones, and 23% of those are smartphones; these statistics do not vary by race, ethnicity, or socioeconomic status;
- 75% of American teens have a social networking site;
- 33% of teenagers say that texting is their favorite way to communicate;
- Older teen girls send more texts than any other group, an average of 100 daily, compared with 50 daily texts from boys of the same age; and
- 30% of students in grades 6-8 and 46% of students in grades 9-12 are using sites such as Facebook and YouTube to collaborate with each other on school projects.

example, that all students be digitally literate, which will require educators to meet students in the technological world where they now live in order to bring them to a new place. There are the challenges that come with ensuring students are good digital citizens—that they understand the potential consequences, negative and positive, of anything they put out on the web, understand plagiarism, and how to harness the power of technology safely, respectfully, and responsibly. Finally, there are the vast opportunities technology brings as a vehicle for enhancing the learning process through greater personalization of instruction—something leaders may need to address through policies that provide the flexibility and incentives needed to allow educators to take advantage of these opportunities.

Key Takeaways

- Today’s students have never lived in a world where the internet wasn’t in their homes and cell phones weren’t in everyone’s pockets. For them, there is no divide between “technology” and their daily lives.
- “Our kids are digitally savvy when it comes to gaming, texting, and social networking,” one expert told state board members, “but when it comes to information, even the best students can be digital doofuses.” In other words, just because they have a more intuitive grasp of how to make technology “work” doesn’t

mean students automatically know how to use it as a tool for learning. Students still need to be taught foundational research skills and processes that can be enhanced by technology use. This means students—and educators—need to understand that doing research is more than just sorting through what pops up via online search engines.

- Internet information often does not have the ordered structure provided by textbooks or other resources for students. Educators need to be sensitive to this, and to their students frame of reference in regards to online searches, when integrating technology in to their lessons.
- With increased access to many different types of tools for learning and socializing and ever-increasing multi-tasking, it has become even more important to teach students how to focus their attention.
- One of the great advantages of technology is its potential for personalizing instruction. Students are used to being able to personalize how they receive information, and when schools don't present information in the same way, they sometimes become bored and disengaged. Instruction should be designed to take advantage of each student's personal style of learning.
- Because online problems can cause disruptions at school, there is a role for schools to help students learn to be safe, responsible, and respectful digital citizens. But in order to do so, school teachers and staff have to be prepared and equipped to monitor and instruct students in safe environments that are close to what they will experience once the filters and monitoring are removed.

Recommendations

- 1) Address digital citizenship and digital literacy.** These are relatively new areas for education leaders to address through the creation of policies and programs. It is important for policymakers to realize that every school community is different and each is starting at a different place. Some will be ready to institute integrated curricula, while others first need to create common definitions. The study group recommends that state boards urge their districts and schools to address the critical areas of digital citizenship and digital literacy and ensure that the state education department is prepared to offer resources and guidance for these discussions.
- 2) Design instruction to take advantage of how each student learns now.** It is time to revisit what “school” is

and how education policymakers can ensure that their decisions create a learning environment that best fits current learners’ needs. Policies at the state and local levels should be responsive to student’s lifestyles and behaviors at home and in the classroom.

- 3) Create policies that allocate resources based on data, student needs, and student, parent and stakeholder voices.** These key stakeholder groups understand the complexities of the issues involved, and can provide the most accurate feedback about what solutions might work best. Additionally, providing access to student performance data to parents and students can also help them serve as an informed partner in ensuring that student study habits, methods and schedules are most conducive to learning outside of school hours.

CHAPTER 2. Ensuring Educators Can Use Technology in Meeting the Needs of Today’s Students

Truly realizing the promise of technology in schools is dependent on the ability of educators—teachers, administrators, specialists, and support staff—to reinvent students’ learning experiences in ways that reflect and take advantage of the digital opportunities that are so much a part of 21st century life.

Ideally, we need school leaders who help communities think very carefully about what learning goals they have for their students, their faculty, and themselves, and then look at how technology tools can support those learning initiatives. It’s not about “using more tech” or even about “using technology to boost engagement,” since what is engagement without direction? The fundamental issue is how do we think about the kind of learning experiences that will prepare people for work, for our democracy, and for a well-lived life, and to what extent can technology support those kinds of learning experiences.

– Justin Reich
“EdTech Researcher” (blog), *Education Week*

Technology cannot replace the human element to a child's learning. Teachers, not technological devices, help students develop the behaviors, skills, and content knowledge needed to succeed post-graduation. The connections students make with their learning and teachers are crucial, and in a networked environment teachers have more options and choices to be able to empower their students in their learning.

– The NASBE Study Group

Unfortunately, the nation's progress in ensuring our educators have the pedagogical training, technological tools, and flexible educational environments needed to provide high-quality digital learning has been mixed at best. Many educator preparation programs do not provide adequate focus on the teaching skills, dispositions, and strategies needed to thrive in a technology-rich school or reflect the digital learning environments we want to create in our K-12 classrooms. Professional learning for teachers too often has not kept pace with advances in technology or new ways of learning, even as the number and quality of these opportunities have fallen significantly due to budget cuts.

Meanwhile, the turnover rate among new teachers—who are also among those most likely to be digital natives—remains very high: one-third leave within their first three years in the classroom, and almost 50 percent leave within their first five years, meaning that much of the training that does take place goes to waste. Finally, educators who want to be innovative about digital learning in an “anytime, anyplace” environment often find themselves stymied by policies and procedures that are not flexible enough to accommodate such strategies.

The Study Group examined five areas related to educators and technology that address these issues and concerns. They include:

- Developing a vision of a “connected educator”;
- Establishing the state's vision for technology and education in standards;
- Making technology-related improvements in educator preparation;

- Using technology and job-embedded professional learning to improve practice; and
- Increasing flexibility around time, place, and pace for learning.

These discussions led to the following takeaways and recommendations.

Key Takeaways

- The nation's progress in ensuring our educators have the pedagogical training, technological tools, and flexible educational environments needed to integrate digitally based strategies and resources into their instruction has been mixed at best. This will continue to be important as research has found that newer teachers aren't any more likely to integrate technology into instruction than veterans.
- States and districts should promote the vision of “networked educators” who form communities of practice through the use of technology and social media. This can help teachers break away from traditional isolated classrooms, provide opportunities for collaboration and professional learning, and help increase teacher retention.
- Do not neglect the role of school leaders when it comes to leading a school forward in technology. This will require very intentional work on the part of states and districts—with the average age of principals hovering around 50, it will be some years before a large portion of school leaders are digital natives.
- States can promote their vision for technology in relation to educators through sets of standards that go beyond students and teachers to cover administrators, online teaching and online courses, technology coaches, and special needs teachers.

Recommendations

- 1) State boards of education, in collaboration with the state education agency, state technology officer and relevant stakeholders, should create a statement, definition, or visionary document defining what a connected and networked educator looks like within the state.
- 2) State boards, in collaboration with relevant stakeholders, should examine what opportunities, incentives, and barriers are in place that inhibit and enhance

the ability for districts to partner with each other, or across state lines, to share resources.

- 3) State boards should examine the policies in place that allow or inhibit the ability for online, virtual, and blended learning opportunities for students and teachers.
- 4) State boards should reexamine the weekly and yearly school calendar to allow districts and schools autonomy to create a schedule that provides additional flexibility and time for students to learn through alternative means and for educators to connect.
- 5) State boards, in collaboration with licensing boards and program accreditation committees, should ensure that teacher candidates have fundamental skills and content knowledge to teach students in a 21st century environment and are able to use student data to personalize instruction.
- 6) State boards should ensure that teacher candidates, no matter their path to the profession, have robust clinical experiences where technology and online learning is incorporated into the program.
- 7) States, districts, and schools should expand professional learning experiences to include online and virtual learning.
- 8) In collaboration with districts and the state education agency, state boards should ensure that teachers are provided with high-quality professional learning and mentorship opportunities embedded throughout the school day through technology. Steps to ensure this include:
 - Defining, implementing, and monitoring effective professional learning;
 - Engaging with the state education agency, governor's office, and legislature to ensure adequate funding and flexibility for pathways and programs for professional learning;
 - Funding a cadre of coaches who can serve as educator effectiveness experts and technology experts;
 - Incorporating opportunities to collaborate virtually into the state's mentorship and induction process; and
 - Incorporating technology and digital literacy into educators' trainings on Common Core standards.

CHAPTER 3. Educational Technology Infrastructure

Technology integration in the classroom means more than providing a new tool for teaching students in the same old ways. Meaningful technology integration in the classroom has the ability to transform and personalize learning for all students. To achieve this vision, however, thoughtful planning and implementation of a robust education technology infrastructure is a must. An up-to-date education technology plan that proactively tries to anticipate the technology needs of schools in the state will need to be a vital component of education policy. The ability for a state to develop this vibrant and effective education technology infrastructure will play a significant factor in being able to connect and engage with students through technology in the ways that benefit their learning and via media they prefer. Some of the core areas states should address include:

- Access and equity in technology infrastructure;
- Developing data systems that provide timely, meaningful information to stakeholders, educators, and policymakers;
- Navigating the transition to digital instructional materials; and
- Supporting blended and online learning opportunities.

State boards have the unique position and authority to support a robust education technology infrastructure through thoughtful examination of these issues. Similar to how good education policy provides a framework to support the education system, a robust education technology infrastructure provides the foundation of support needed to implement technology effectively across a state. Fol-

Almost 80 percent of schools that receive Federal E-Rate funding for broadband say their Internet connection does not fully meet their needs. Almost half of the E-Rate funded schools have an Internet connection of 3 megabits per second (Mbps) or less. To put this in perspective, 3 Mbps is slightly below the recommended bandwidth for one residential household in the FCC's National Broadband Plan.

lowing are the key takeaways and recommendations for state's educational technology infrastructure.

Key Takeaways

- States should determine the current state of their districts' and schools' capacity to integrate technology in meaningful ways in the classroom including access, broadband, and human capital. State's need to know if their schools have the capacity to provide online assessments.
- Bandwidth is increasingly becoming a major factor in today's digital divide, especially for rural districts and schools.
- States should use both the results of the assessment consortia's readiness survey and additional information gathered to assess technology equity between districts and schools.
- States have come a long way in terms of data systems and their use, but there is still a ways to go. Only three states have implemented policies and practices, including professional development and credentialing, to ensure educators know how to access, analyze and use data appropriately. In addition, only six states share teacher performance data with education preparation programs.
- A robust state data system is essential, but it is not sufficient. Educators must have ongoing training and support if they are going to be effective in improving instruction and advancing the education system.
- Access to data is critical if the system is going to be effective—but so is privacy. States should consider providing segmented access to the data system for stakeholders in ways that still respect student privacy.
- States should provide sufficient flexibility so districts and schools can acquire and use digital textbooks. However, this also makes it more important for states to provide guidance to help school districts evaluate the quality of different online and content products to help determine what best meets their needs?

Recommendations

- 1) **Ensure that every student has adequate access to a computing device and the Internet at school and**

home, with sufficient human capital in schools to support their effective use. Education technology infrastructure-building will be a key aspect of ensuring equity and access in schools and communities moving forward. However, technology acquisition is just one piece of an effective education technology plan for a state. Policymakers also need to ensure that after the state, districts, and schools develop sufficient technology infrastructure, educators know how to use these tools to improve instruction.

- 2) **States should have an up-to-date technology plan and policy that is reviewed on a pre-determined timeline.** Technology typically stands alone in education, treated as a discrete subject like math or history. However, given the impact technology can have on transforming the entire education system to bring a personalized learning environment to every student, policymakers need to develop a state technology plan that provides a vision for how and where technology can change the way educators interact with students to facilitate learning. A robust education technology plan should include everything from instructional practices to teacher preparation and professional development and how technology can support every aspect of the education system.

In addition, since the technology landscape rapidly changes, it is important that both technology plans and policies are flexible enough to allow future technologies to flourish and are reviewed on a regular basis to ensure they are still relevant and do not hinder effective integration of technology into the classroom in meaningful and powerful ways.

- 3) **States and districts should address the interoperability of devices, software and data.** As more and more students start using their own devices in an education setting and as technology continues to evolve, it is important that the ways students interact with the devices remains consistent regardless of device. Therefore, it is important that all devices, regardless of operating system, are able to efficiently and effectively interact with students and are supported by schools.

Additionally, to facilitate vibrant use of data systems, it is important that the data stored in them is accessible to stakeholders in a variety of ways, including providing parents access to relevant information such as student achievement scores that can be downloaded for use on other platforms.