

## Technology Readiness for College and Career Ready Teaching, Learning and Assessment

As schools and districts across the country continue to move forward in implementing the Common Core State Standards, two multi-state consortia – the Partnership for the Assessment of College and Career Readiness (PARCC) and the Smarter Balanced Assessment Consortia – are designing and developing Common Core-aligned, next generation student assessment systems. Schools in participating states can expect to administer these new tests beginning in the 2014-15 school year.



One important feature shared by both the PARCC and Smarter Balanced assessment systems is that student assessments will be technology-delivered. At least 33 states currently deliver one or more state tests via technology; however, for many schools and districts the shift to computer-based assessment will be new. While there are compelling advantages to a technology-based assessment system as compared to current paper- and pencil-based approaches, schools and districts will need to validate their technology readiness for 2014-15. Validation for technology readiness is important even for states and districts currently administering tests online, as these Common Core assessments are being designed to move beyond multiple-choice questions to technology-enhanced items to elicit the higher order knowledge, skills, and abilities of students.

As guidance regarding minimum technology specifications are released by PARCC and Smarter Balanced, education leaders must consider this information in the context of the full range of technology issues schools are addressing today. SETDA strongly encourages education policymakers and leaders to undertake a proactive systems approach to addressing school technology needs for the long-term, explicitly considering the present and future technology needs to meet curricular, instructional, assessment, professional development and school operations goals.

Specifically:

- **Digital learning is necessary** to approach the higher levels of critical thinking set forth in new college and career ready standards, to meet the individual needs of every student, to support and enhance teachers in improving their practice, and to realize cost-savings and efficiencies in school operations.
- **Digital testing requires digital learning.** Students using technology to take high-stakes tests must have significant opportunities to develop and demonstrate mastery of tested knowledge, skills and abilities via substantially similar technology prior to being tested. Teachers must be prepared to support this shift in instruction.

- **Instructional goals and needs must be paramount in long-range technology planning and purchases**, including in planning for technology for assessment. The Common Core establishes ambitious college and career ready expectations for all students, including deeper learning skills especially well suited to innovative instructional approaches.
- **School leaders must prioritize investments in broadband infrastructure for teaching, learning and assessment** – within schools, within districts, and to the internet – due to the time and complexity required to address any insufficiencies.

### **Infrastructure Considerations**

- The May 2012 SETDA report, *The Broadband Imperative*, establishes clear national targets for connectivity to support next generation approaches to college and career readiness: schools will need external Internet connections to their Internet service provider of 100 Mbps per 1,000 students and staff by 2014-15 and of 1 Gbps per 1,000 students and staff by 2017-18. Schools and districts should evaluate their current and future needs against these targets, recognizing that robust broadband access is the limiting factor in digital learning in far too many schools across the country.
- It is vital that the quality of broadband access is verified to be at recommended levels in all instructional spaces in schools and with the full range of devices in use. Even if schools believe that they have procured sufficient bandwidth, local network architecture, server settings, the number of wireless access points, and weak wireless signals (and/or the use of outdated wireless protocols) may affect performance in individual classrooms.
- Out-of-school access to broadband by students and teachers is now arguably as important to the overall quality of the student learning experience as access at school. Education leaders should consider ways to extend access to learning beyond the school day by addressing access outside of schools including, but not limited to, in students' homes and such publicly accessible institutions as libraries and community centers.

### **Device Considerations**

- Planning to use computers, servers and networks purchased prior to 2010 – i.e., machines that will be five or more (5+) years old during the 2014-15 school year – will increase the chances of disruption and lost productivity due to a technology-related problem. The longer these devices are relied upon, the greater the odds are that serious issues will arise that will result in lost student work and disrupted learning.

- Due to the dramatic escalation in security and software incompatibility issues – as well as increased odds of hardware failure – schools should not plan to rely on computers running operating systems that are or will no longer be updated and/or supported by their manufacturers as of the 2014-15 school year.
- Virtualization is one promising – and potentially cost-saving – approach to repurposing older computers to extend their useful lives. In this context, virtualization solutions allow older devices within a school to be managed centrally and in so doing to run modern operating systems and software that they might not otherwise have the capabilities to support. For high-stakes assessment purposes, virtualization solutions must be able to manage the unique security requirements of testing.
- Whether or not your schools are ready to commit to providing one device per student as many have already done or are planning to do, in purchasing new devices, schools should consider how best to meet student learning needs, including by:
  - Preserving flexibility, by favoring devices designed for mobile/portable general purpose use (over desktops and single-purpose devices) that can be used in a variety of locations and ways within the school day and over the school year;
  - Addressing the need for students to complete assignments/create content (such as to write essays, analyze data and prepare presentations) in addition to accessing/consuming content;
  - Meeting the learning needs of specific populations of students, including but not limited to students with disabilities and English language learners, who may require special accommodations to access critical functionality; and,
  - Easily managing large numbers of devices that over time will require regular software updates, security patches, and other routine maintenance.
- There are many reasons schools are looking to ‘bring your own’ (BYO) technology initiatives as a way to support student learning in and out of school. For purposes of being technology ready for high-stakes assessment, schools should carefully consider whether their specific BYO implementation is sufficient to addressing the full range of testing-specific security, comparability and liability issues.

### **Human Resource Considerations**

- The Common Core will require many teachers to change their approach to teaching related subject areas, including the integration of new instructional materials and teaching tools. Professional development must assist teachers to make these instructional transitions with technology and not treat technology-related professional development as distinct from the instructional process.

- States and districts have found that instructional technology facilitators/coaches can be a powerful approach to providing just-in-time support for educators in shifting to not just using, but relying upon digital learning resources as a core component of instruction and student learning.
- Adequate numbers of qualified technical support personnel are critical to supporting technology use in schools. As teachers and students increasingly rely on technology for teaching, learning and assessment, investments will need to be made in technical support personnel to keep pace with technical support requests or risk lost productivity. Maintaining a diversity of older machines and operating systems will dramatically increase technical support needs in schools.

### **Long-Range Planning and Budgeting**

- While there will be one-time costs associated with technology readiness for assessment in some schools and districts by 2014-15, technology costs must be included as an ongoing line item in annual budgets. Schools spending less than 5 percent of their budgets on devices and infrastructure will be hard pressed to meet existing and future needs.
- Leading states and school districts have pursued a variety of strategies to repurpose existing funding streams and to plan for recurring technology costs, including:
  - Pursuing joint purchasing agreements at a state or regional scale to secure the best pricing;
  - Repurposing traditional textbook spending as detailed in the September 2012 SETDA Report, *Out of Print: Reimagining the K-12 Textbook in a Digital Age*;
  - Considering free open source software and open educational resources (OER) before proprietary solutions;
  - Considering the total cost of ownership for technology – for devices, software, technical support and maintenance, and upgrades – in deciding how frequently to replace purchased devices; and,
  - Evaluating whether leasing equipment is more advantageous than purchasing and/or conducting advance planning to address the need to refresh devices on a regular cycle.
- It is important for school districts to ensure that existing policies and practices are sufficient for and encouraging of digital teaching, learning, and assessment; address unique issues related to technology access and use by students and teachers; and are periodically reviewed to ensure that they reflect best practices.

### **Conclusion**

If we are serious about pursuing a college and career readiness agenda for all students, it will be vital to leverage the power of technology to improve instruction, assessment and

professional development and to realize cost savings in school operations. In so doing, education policymakers and school leaders must be proactive in charting a sustainable and comprehensive approach to using technology in schools that puts the learning needs of students at the core.

## Recommended Resources

### SETDA Resources

Fletcher, G., Schaffhauser, D., and Levin, D. (2012). *Out of Print: Reimagining the K-12 Textbook in a Digital Age*. Washington, DC: State Educational Technology Directors Association (SETDA). <http://setda.org/web/guest/outofprintreport>

Fox, C., Waters, J., Fletcher, G., and Levin D. (2012). *The Broadband Imperative: Recommendations to Address K-12 Education Infrastructure Needs*. Washington, DC: State Educational Technology Directors Association (SETDA). <http://setda.org/web/guest/broadbandimperative>

Levin, D., Fletcher, G., and Chau, Y. (2011). *Technology Requirements for Large-Scale Computer-Based and Online Assessment: Current Status and Issues*. Washington, DC: State Educational Technology Directors Association (SETDA). <http://setda.org/web/guest/assessment>

assess4ed: An online community dedicated to leveraging the opportunities of next generation assessment. <http://assess4ed.net/>

The State Education Policy Center (SEPC): a database of state policies related to education and technology curated by the State Educational Technology Directors Association. <http://setda.org/web/guest/sepc>

### Assessment Consortia Resources

Partnership for Assessment of Readiness for College and Careers (PARCC): Technology Issues and Approach <http://www.parcconline.org/technology>

Smarter Balanced Assessment Consortium: Technology Issues and Approach <http://www.smarterbalanced.org/smarter-balanced-assessments/technology/>

For more information and resources on this topic, please visit <http://www.setda.org/web/guest/assessment>