THE

PROFESSIONAL LEARNING MODULE 1
Five Imperatives
for Technology Leadership

EMPOWERED
SUPERINTENDENT

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About the Consortium for School Networking

The Consortium for School Networking (COSN) is the premier professional association for district technology leaders. For over two decades, CoSN has provided leaders with the management, community building and advocacy tools they need to succeed. Today, CoSN represents over 10 million students in school districts nationwide and continues to grow as a powerful and influential voice in K–12 education.
www.cosn.org

About AASA

AASA, The School Superintendents Association, founded in 1865, is the professional organization for more than 13,000 educational leaders in the United States and throughout the world. AASA advocates for the highest quality public education for all students, and develops and supports school system leaders.
www.aasa.org

THE EMPOWERED SUPERINTENDENT

eading a district in the digital age can be both thrilling and daunting. As a super-intendent, you may have experienced the power of technology to engage students and faculty now—and you see incredible promise in emerging educational applications of technology on the horizon. At the same time, you're focused on the big picture of student learning, with the ultimate goal of preparing all students for future success in a highly competitive, hyper-connected world.

Technology is integral to that vision, and to every aspect of K–12 school life, from academics to business operations. You want to be certain that the dizzying array of technology options—from mobile devices to enterprise systems and cloud-based services—are selected and used strategically to support your educational vision and improve student outcomes, especially with perennially constrained budgets. And you want to be knowledgeable and comfortable articulating your vision and answering questions from the School Board, educators, parents, students, business leaders, taxpayers and the entire school community:

- How does technology advance district goals?
- Who is making sure that technology is used to engage all students, personalize learning, and build key knowledge and skills?
- How are you helping teachers integrate technology into instruction and shift instructional practices?
- How does technology support innovation and transformation?
- How does technology help improve student achievement?
- How are you using and safeguarding data—and ensuring students' privacy?
- What role do parents play in technology initiatives?
- How does technology help improve school operations and make schools more responsive?
- Are technology solutions affordable and cost-effective?
- What's the long-range strategic plan for technology—and is it sustainable?

The Consortium for School Leadership (CoSN), the nation's premier voice for technology leadership in K–12 education, can help you answer such questions and provide effective technology leadership in your district.

Updated Guidance, Action Steps and Practical Tools

The Empowered Superintendent is a CoSN initiative dedicated to helping superintendents, aspiring superintendents and district leadership teams build their knowledge, skills and confidence as technology leaders. Superintendents nationwide have used the insights and tools first developed for this initiative in 2008, and updated in 2010, to strengthen technology leadership district-wide.

Now, Version 3.0 of this toolkit refreshes the guidance, action steps and practical tools to help you navigate changing educational and technology leadership demands.

This CoSN resource is related to the **Leadership & Vision** and **Team Building & Staffing** categories of CoSN's *Framework of Essential Skills of the K–12 CTO.*

"Digital resources are more important than ever for transforming learning, teaching and operations. We must maximize and utilize the leadership resources we have. CTOs who serve as cabinet- or executive-level members enhance the connection with school success and wise technology decisions. Building and developing strong collaborative leaders creates synergy for innovation for teaching and learning."

Mark A. Edwards, Ed.D.
Superintendent
Mooresville Graded
School District (NC)
2013 AASA National
Superintendent of the Year
and author of
Every Child, Every Day and
Thank You for Your Leadership

What's New

- **Professional Learning Module 1: Five Imperatives for Technology Leadership.** The education landscape has changed considerably since this toolkit was first released. But the five themes for technology leadership introduced then have staying power and they are resonate so strongly with superintendents that they are now called imperatives. New perspectives on all five imperatives, plus new resources for professional learning, will bring you up to date.

- **Professional Learning Module 2: Four Action Steps for Strengthening the Technology Leadership Team** The vital role of technology in education continues to change and expand. Technology infrastructure, systems, devices and funding can be complex. As a superintendent, you will be a more capable technology leader when you partner with a highly qualified chief technology officer (CTO) as a cabinet-level advisor. A team approach to technology leadership will help superintendents and CTOs work as allies to foster 21st century learning environments.

- **An Expanded Set of Tools to Strengthen Technology Leadership.** CoSN's research-based *Framework of Essential Skills of the K–12 CTO* and Certified Education Technology Leader (CETL)™ examination—the only professional certification developed specifically for educational technology professionals—complement the superintendent initiative. They define a broad range of knowledge, skills and responsibilities required for CTOs to understand and strengthen the superintendent's vision—and make that vision a reality. Key points and practical tools for hiring, developing and evaluating CTOs and educational technology professionals are integrated with this toolkit.

    CoSN is uniquely qualified to give you a comprehensive view of district technology leadership and valuable tools to achieve your vision of education in the digital age.

> "My school district is in its first year of our digital conversion. We spent the better part of a year preparing for the kickoff. Version 2.0 of the Empowered Superintendent toolkit was a tremendous asset to me during the planning phase. Version 3.0 is a much stronger resource for school superintendents."
>
> **Mike Winstead**
> **Director of Schools**
> **Maryville City Schools (TN)**

CTOs are educational technology leaders who are responsible for technologies that are increasingly complex, greater in number and scope, and ever more integrated into the daily instructional and administrative routines of school districts. CTOs are known by many titles, including Chief Information Officers (CIOs) and Technology Directors.

5 IMPERATIVES FOR TECHNOLOGY LEADERSHIP

1. Strengthen District Leadership and Communications
2. Raise the Bar with Rigorous, Transformative and Innovative Learning and Skills
3. Transform Pedagogy with Compelling Learning Environments
4. Support Professional Development and Communities of Practice
5. Create Balanced Assessments

4 KEY ACTION STEPS FOR BUILDING A SKILLED TECHNOLOGY LEADERSHIP TEAM

1. Recognize and better understand the evolving role of the CTO and how the CTO can elevate learning environments.
2. Clearly identify the role of the CTO in the district structure, preferably in the cabinet.
3. Help guide the CTO interview and hiring process, seeking candidates with CETL credentials.
4. Target professional training needs to build your technology staff to the CETL level.

10 SKILL AREAS FOR CHIEF TECHNOLOGY OFFICERS

Leadership & Vision

1. Leadership & Vision
2. Strategic Planning
3. Ethics & Policies

Understanding the Educational Environment

4. Instructional Focus & Professional Development
5. Team Building & Staffing
6. Stakeholder Focus

Managing Technology & Support Resources

7. Information Technology Management
8. Communication Systems Management
9. Business Management
10. Data Management

Plus: **Core Values & Skills— Critical personal skills and behaviors**
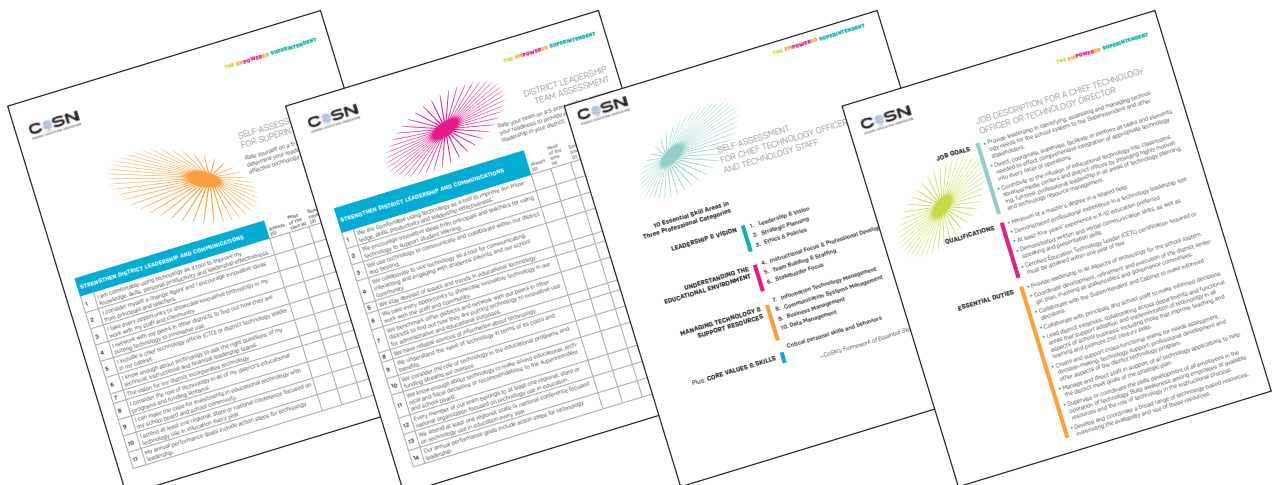
8 PRACTICAL TOOLS FOR STRENGTHENING TECHNOLOGY LEADERSHIP

1. Self-Assessment for Superintendents
2. District Leadership Team Assessment
3. Self-Assessment for Chief Technology Officers and Technology Staff
4. Chief Technology Officer Job Description
5. Interview Questions for Hiring an Educational Technology Leader
6. Evaluation Rubric for the Chief Technology Officer
7. CETL Certification for Educational Technology Staff
8. References and Resources for Professional Learning

Visit the CoSN website to download these practical tools.

www.cosn.org/superintendents

"This toolkit provides a coherent picture of district technology leadership—a synthesis of the key challenges, opportunities and trends in education in the digital age, a team approach to technology leadership with a skilled CTO to help districts make smart use of technology, and terrific tools to improve the knowledge and skills of the entire district leadership team."

A. Katrise Perera, Ed.D.
Superintendent
Isle of Wight County Schools (VA)

1. STRENGTHEN DISTRICT LEADERSHIP AND COMMUNICATIONS

If you pay attention to edu-cational trends, you know that the focus on school improvement is now a more ambitious vision of trans-formation and innovation. Has your leadership style changed in response to this monumental shift? Research and best prac-tices offer fresh perspectives on leadership:

Rethink your leadership role.

The superintendent's role has evolved from "teacher," "manager" and "politician" (Cuban 1985) to chief executive officer and, ideally, visionary leader (Devono & Price 2012). CoSN first recog-nized the importance of district technology leadership a decade ago, when a nationwide survey of technology decision makers revealed that visionary technology leadership—and the community support fostered by superinten-dents—is critical to the success of technology plans, budgets and implementations.

More recent research echoes and elaborates on these findings. Visionary leaders understand and communicate present challenges and frustrations and, at the same time, offer a novel and compelling vision of the future. They inspire and motivate people to take col-lective action to reach that vision. Visionary leaders attract more followers, especially in times of change or crisis (Halevy, Berson & Galinsky 2011).

In schools, such "followers" as principals and teachers can help superintendents achieve district goals. A report by Project RED: Revolutionizing Education (Greaves et al. 2012) emphasizes the vital role of district and school leadership in making educational technology efforts effective. "It found that high-quality leader-ship was 'essential' to better use of technology and that schools whose leaders had properly implemented 1-to-1 programs, for example, saw significant improve-ments in everything from test scores to dropout rates, over both schools without these programs and those without properly imple-mented programs" (Davis 2013).

Be a change agent. "The superintendent, as visionary leader, plays a major role in developing an effective learning environment" and "working with all the stakeholders, must be the agent of change within the system" (Devono & Price 2012).

ADDITIONAL COSN RESOURCES

CoSN collaborates every year with the New Media Consortium to produce the *Horizon Report*, which examines emerging technologies for their potential impacts on and uses in teaching, learning and creative inquiry in K–12 education. The report analyzes emerging technologies that will have the greatest impact within five years. You should make a point of reading the report every year and using it as a conversation starter for how emerging technologies could help solve district challenges.
www.cosn.org/horizon

Leading superintendents follow through on their vision by "walking the walk"—visibly championing, modeling and celebrating the use of innovative technologies in their communities. They also present themselves as inquiring learners, seeking out new technology tools, participating in technology-focused professional development alongside teachers, observing classroom use of technology for teaching and learning, and asking questions to learn about the practical experiences of teachers and students.

"Our charge today is to transform learning and foster innovation. That culture change can only happen in schools and classrooms if we empower everyone to experiment and take risks."

Ann W. Linson
Superintendent
East Noble School Corporation (IN)
2013 National School Boards
Association "20 to Watch"
Technology Leader

Distribute leadership. You can't change the culture of a school system on your own. As it turns out, the top challenge CTOs (and district leaders in similar positions) are dealing with right now is the changing culture of teaching and learning, according to CoSN's 2014 K–12 IT Leadership Survey. Merging your efforts and leveraging CTO expertise will help you communicate with confidence in your community about present challenges as an informed, passionate and believable advocate for change.

The CTO should be a key advisor and ally in your cabinet, on par with chief academic and chief financial officers—a recommendation of the National Education Technology Plan (U.S. Department of Education 2010). The CTO can help your leadership team think through and take strategic actions to gain the educational benefits you want to realize, with the effective integration of technology resources.

Foster strong leaders and a safe environment for innovation and risk taking throughout your district. Empowered superintendents recognize that innovative ideas can bubble up from anywhere and anyone. They encourage principals and teachers to think of themselves as leaders, to experiment and take risks in schools and classrooms, where the real innovation needs to happen. Even when new approaches fail—as they sometimes do—leading superintendents stay the course in supporting that entrepreneurial mindset.

How can you create a culture of innovation in your district? Innovative organizations are consistently able to do these few things (adapted from Hoque 2014):

- **Listen** to insights and ideas from inside and outside your community.

- **Stay open** to ideas from "novices"—including students—and "backroom tinkerers."

- **Collaborate** with outside experts and organizations to bring new perspectives and ideas into the innovation process.

- **Go flat** in your management structure to eliminate long approval processes and disjointed lines of communication.

- **Embrace failure,** because unintended results and accidents can lead to innovative discoveries.

And consider these other ideas:

- **Be intentional** about what you want to accomplish. Make sure your school community knows what your vision and mission are, so people can align their thinking with those goals (Kaplan 2013).

- **Train staff** to help them understand and develop entrepreneurial skills, such as creative and critical thinking, problem solving, risk assessment and risk-taking, and communication and collaboration.

- **Look at problems** from multiple angles, and dig down to identify root causes (Microsoft Educator Network).

- **Create spaces and times to focus on innovation** (Microsoft Educator Network), such as innovation labs, events, and structured and unstructured time for collaboration, where innovators can brainstorm, work with others tackling similar problems, and share their experiences (Markman 2012, Schwartz 2010, Kaplan 2013).

- **Maximize diversity** of people, perspectives and experiences to generate new ideas (Linkner 2011).

- **Pilot ideas** with small populations—in a classroom, a few classrooms or a school or with a targeted group of students. Monitor and adjust strategies to improve implementation and measure the impact. If the idea works, don't keep it under wraps: scale it up.

- **Reward risk takers** with informal recognition and symbolic gestures, such as sharing success (and failure) stories that celebrate lessons learned (Kaplan 2013).

"Most superintendents have full agendas and multiple priorities on their to-do lists. That's exactly why we need to make better use of technology ourselves. If we believe technology will make students and staff more productive and creative, we need to learn and model that in our districts."
Terry B. Grier, Ed.D.
Superintendent, Houston Independent School District, district winner of the 2013 Broad Prize for Urban Education
State Superintendent of the Year in Texas and North Carolina
2014 Finalist for AASA National Superintendent of the Year

Create thoughtful policies that enable innovation. Empowered superintendents understand that protecting privacy and shielding students from unacceptable content or other cyber threats are real and growing concerns. In the past, many districts reacted to these concerns by banning students and educators from accessing even useful educational resources.

Now, more districts are rethinking whether and how to provide access to good digital tools, while continuing to comply with privacy requirements in the Family Educational Rights and Privacy Act (FERPA) and Children's Online Privacy Protection Act (COPPA), and filtering requirements in the Children's Internet Protection Act (CIPA). Thoughtful policies can help districts strike the right balance between protection and access—and communicate this balanced approach to parents and the community.

LEADERSHIP TOOLS
• **Self-Assessment for Superintendents**
• **District Leadership Team Assessment**

Action Steps for Superintendents and District Leadership Teams

- Communicate and build support for your vision with key stakeholders.

- Leverage district and school leadership and talent to create an organizational culture that values innovation and encourages everyone to try new approaches.

- Remove real or perceived barriers that might be impeding needed changes or innovative practices.

- Commit to attending at least one regional, state or national conference focused on technology use in education every year, ideally with your CTO.

- Partner with a highly qualified CTO in your cabinet. Use CoSN's *Framework of Essential Skills of the K–12 CTO* to better understand and promote the role of current and aspiring CTOs and other educational technology professionals.

- Foster technology leadership development and competencies by encouraging CTOs and other educational technology professionals to prepare for and take CoSN's Certified Education Technology Leader (CETL)™ examination.

- Make sure you understand the regulatory requirements for privacy, filtering and acceptable use—but balance compliance efforts with forward-thinking policies.

- Use every opportunity to model your enthusiasm and willingness to try new technologies.
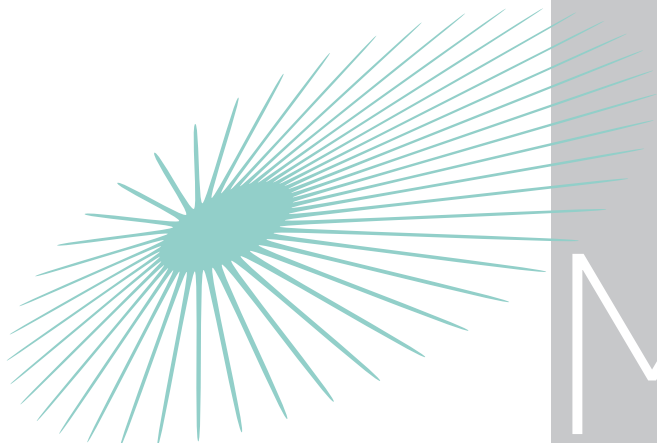
2. RAISE THE BAR WITH RIGOROUS, TRANSFORMATIVE AND INNOVATIVE LEARNING AND SKILLS

Many districts are engaged in shifting to higher academic standards in core subjects, with the aim of increasing students' knowledge and skills to better prepare them for college, careers and life.

Standards alone, however, will be no magic bullet for transformation and innovation in your district. Concerns remain about students' postsecondary and workforce preparedness, as evidenced by myriad indicators:

- Lackluster student performance on state, national and international assessments
- Watered-down expectations and coursework
- Unacceptably high dropout rates and remedial coursework in postsecondary education
- Skills deficits

These concerns—and new ones—are inspiring bold new thinking about what and how students should learn to be world-ready by the time they graduate. These compelling ideas share common themes—such as more rigorous, skillful, active and engaged learning for all students—that could broaden your vision for education across all subjects, teachers and students:

Dig deeper on learning. To succeed in the classroom, on the job and in life, students need to be able to apply what they know to solve complex problems, interpret the world around them and adapt in a quickly changing environment. To equip students to take on academic, workplace and life challenges, the Alliance for Excellent Education and the William and Flora Hewlett Foundation are among those calling for "deeper learning" across the curriculum. According to the Hewlett Foundation (2013), this means students must:

- Master core academic content
- Think critically and solve complex problems
- Work collaboratively
- Communicate effectively
- Learn how to learn
- Develop academic mindsets

Research shows that students who attended high schools that explicitly focus on deeper learning achieved higher test scores on state and international assessments; reported higher levels of collaboration skills, academic engagement, motivation to learn and self-efficacy; and were more likely to graduate on time and enroll in four-year postsecondary institutions, compared to their peers who did not attend schools with a deeper learning focus (American Institutes for Research 2014).

This concept of deeper learning echoes the Partnership for 21st Century Skills' advocacy for mastery of core academic subjects and 21st century skills, including the "4 Cs" of creativity, critical thinking, communication and collaboration, in its Framework for 21st Century Learning, which is endorsed by CoSN and other leading education organizations and 19 states.

Recommit to citizenship education. Many advocates believe that citizenship education has been neglected in recent years, which imperils our democracy and the capacity of individuals and organizations to understand global issues and participate effectively in local, national and global arenas (see, e.g., Coley & Sum 2012; Gould et al. 2011; National Task Force on Civic Learning and Democratic Engagement 2012; U.S. Department of Education 2012). In a connected world of complex, interdisciplinary challenges, the context of citizenship is changing—and the demands of citizenship are rising (see, e.g., Mansilla & Jackson, 2011; Cable in the Classroom). According to the Partnership for 21st Century Skills (2013), 21st century citizenship education should encompass "informed, engaged and active practices" across three dimensions:

> "We have an obligation to prepare our students for careers and opportunities that don't even exist today. By the time they graduate, they must have the skills and knowledge necessary to learn, adapt and successfully engage in an ever-changing global environment"
>
> **David R. Schuler, Ph.D.**
> **Superintendent**
> **High School District 214 (IL)**
> **AASA President-Elect (2014–15)**

- **Civic literacy**—the knowledge of government and the role of citizens, as well as the motivation, disposition and skills for civic participation

- **Global citizenship**—global competencies required to contribute in a varied society and make sense of significant, global issues

- **Digital citizenship**—the knowledge and skills to use technology appropriately to navigate the digital world, manage risks and take advantage of the participatory opportunities it offers, including understanding how to stay safe and secure online; knowing how to find, evaluate, manage and create digital content; understanding how to participate intelligently and ethically as a responsible citizen in online communities; and understanding the rights and responsibilities of a digital citizen.

Technology has a role to play in developing a better informed citizenry and in promoting connections to the world.

Take a new look at the arts. You probably know about the sustained push to improve student achievement in science, technology, engineering and mathematics (STEM) to meet the growing demand for talent in STEM-related careers. The rise of the creative economy is prompting renewed interest as well in arts education—an undervalued core academic subject, advocates say.

A growing body of research indicates that high-quality instruction in the visual and performing arts improves student achievement in academic subjects, improves student engagement and motivation (including attendance and behavior), and develops problem solving, critical and creative thinking, and social competencies (President's Committee on the Arts and the Humanities 2011). Notably, these benefits are particularly pronounced for low-income students—who are the least likely to attend schools with strong arts programs (Catterall, Dumais & Hampden-Thompson 2012; Parsad & Speigelman 2012).

Integrating arts learning strategies into academic subjects can deepen learning across the board (National Association of Elementary School Principals 2012). Moreover, digital technologies are offering young people new ways to engage in the arts on their own time and according to their own interests (Peppler 2013).

Action Steps for Superintendents and District Leadership Teams

- Explore new research and initiatives with powerful ideas for improving educational outcomes. Consider how they could complement and strengthen your implementation of the Common Core or other similarly rigorous state standards.

- Commit to improving your own knowledge and skills in a new focus area.

- Engage your community in a dialogue about the new standards and skills students are expected to master—and why.

- Connect with forward-thinking education leaders to find out how they are incorporating new ideas into their vision and practices to raise the bar on student expectations and achievement.

If you consider the mastery of academic content and higher-order reasoning and practical skills expected of all students today, it's clear that schools and classrooms cannot be the only venues of transformative learning experiences. The wider world, communities of peers and interests, digital devices and multimedia resources beckon young people. Rather than turn a blind eye to this, leading educators are embracing new approaches to create a more holistic concept of physical and virtual learning spaces and interactions.

Are you coupling skilled teaching with compelling learning ecosystems that inspire students to give their all to reach higher learning goals? These ideas could help you examine your district's teaching and learning environments with new eyes:

Explore fundamental principles for innovative learning environments. Research by the Organisation for Economic Development and Cooperation (OECD 2013), which administers international assessments, indicates that the most innovative and effective learning environments should:

- Make learning and engagement central.
- Ensure that learning is social and often collaborative.
- Be highly attuned to learner motivations and emotions.
- Be acutely sensitive to individual differences.
- Be demanding for each learner but without excessive overload.
- Use assessments consistent with learning aims, with strong emphasis on formative feedback.
- Promote horizontal connectedness across activities and subjects, in and out of schools.

3. TRANSFORM PEDAGOGY WITH COMPELLING LEARNING ENVIRONMENTS

OECD's research is based on case studies of 125 schools (and other learning environments) in more than 20 countries that are making significant departures from mainstream learning in their aim to meet ambitious, 21st century learning goals.

Learners, educators, content and resources are the key elements and dynamics at the heart of every learning environment—what OECD terms "the pedagogical core." "Rethinking these core elements is fundamental to innovating any learning environment. … Organisational dynamics and choices connect these core elements. They are such a familiar part of school routines and cultures that often they pass unnoticed but in reality they powerfully structure what takes place" (OECD 2013).

Technology enhances the possibilities for reimagining what it means to be a learner or educator and rethinking content and resources. For example, **learners** can be students brought together virtually—and parents can be engaged as learners. Teachers are **educators**, of course, but different experts, adults or peers can be educators as well. Innovative **content** includes 21st century competencies and interdisciplinary inquiry that push students to integrate knowledge and skills and apply them to new topics, such as sustainability or participation in democratic processes. **Resources** include a wide array of digital tools to connect students, educators and the community; inspire participation and responsibility for learning; and invigorate learning spaces indoors and outdoors, in school and beyond (OECD 2013).

Make learning a connected experience. The National Education Technology Plan calls for bringing "state-of-the-art technology into learning to enable, motivate, and inspire all students, regardless of background, languages, or disabilities, to achieve. It leverages the power of technology to provide personalized learning and to enable continuous and lifelong learning" (U.S. Department of Education 2010).

Technology can empower students to take control of their learning by providing access to "more learning resources than are available in classrooms and connections to a wider set of 'educators,' including teachers, parents, experts, and mentors outside the classroom" (U.S. Department of Education 2010). Those learning resources include information,

ADDITIONAL COSN RESOURCES

A mobile learning environment can be a smart way to transform pedagogy, engage and motivate students, personalize teaching and learning, incorporate new kinds of assessments and feedback, and promote connectedness. CoSN's **Leadership for Mobile Learning** initiative helps education leaders create a mobile learning environment with resources including:

- An **Administrator's Guide to Mobile Learning** to help you plan, implement and improve mobile learning
- An **infographic** with tips and common pitfalls
- A **Leadership for Mobile Learning Resource Guide**
- **Mobile learning insights** featuring short videos with candid, pragmatic advice on key topics from pioneering district technology leaders

http://www.cosn.org/mobilelead

management and communication tools; knowledge-building tools; online tutoring and guided courses; expertise and authoritative sources; personal learning networks; learning communities; and peers with common interests.

Research by the Connected Learning Research Network, an initiative of the Digital Media and Research Hub, advocates for "broadened access to learning that is *socially embedded, interest-driven, and oriented toward educational, economic, or political opportunity.* Connected learning is realized when a young person is able to pursue a personal interest or passion with the support of friends and caring adults, and is in turn able to link this learning and interest to academic achievement, career success or civic engagement. This model is based on evidence that the most resilient, adaptive, and effective learning involves individual interest as well as social support to overcome adversity and provide recognition" (Ito et al. 2013).

Foster personalized, active and tenacious learning. The best teachers have always taught students to apply and strengthen their knowledge and skills with active, inquiry-based strategies, such as project-based and cooperative learning with relevance to real-life experiences. Now, *all* teachers need to do that for *all* students.

Many organizations inside and alongside K–12 education are focused on making learning a more personalized, dynamic and participatory endeavor. The Maker Movement, as just one example, promotes "learning by doing" and solving problems to "create a vibrant collaborative community of global problem solvers" (Martinez & Stager n.d.). New tools and technology are essential elements in doing, making and learning experiences.

New research from the Stanford Center for Opportunity Policy in Education (SCOPE) documents the benefits of "student-centered" learning environments and practices for students of color and low-income students. A student-centered learning environment emphasizes "personalization; high expectations, hands-on and group learning experiences, teaching of 21st century skills, performance-based assessments; and opportunities for educators to reflect on their practice and develop their craft as well as shared leadership among teachers, staff, administrators, and parents. … Schools that incorporate these key features of student-centered practice are more likely to develop students that have transferrable academic skills; feel a sense of purpose and connection to school; as well as graduate, attend, and persist in college at rates that exceed their district and state averages" (McKenna 2014).

Effective teachers also motivate students to keep trying when learning is hard and to rally against adverse circumstances. New research indicates that grit, tenacity and perseverance are key noncognitive, multifaceted factors that equip students to set and reach goals, overcome challenges and use specific strategies to managing them (U.S. Department of Education 2013). Learning environments can be designed to promote these noncognitive mindsets and habits:

- "First, students need opportunities to take on 'optimally challenging' goals that, to the student, are worthy of pursuit. …

- "Second, students need a rigorous and supportive environment to accomplish these goals and/or develop critical psychological resources," which include teachable academic mindsets, effortful control of willpower and attention, and specific strategies and tactics to deal with setbacks (U.S. Department of Education 2013).

Again, technology has the potential to help students face challenges resiliently by helping them set and manage goals, monitor progress, access personalized resources and support systems, trigger interest in school subjects, and learn academic mindsets, effortful control and specific strategies for staying on track, for example (U.S. Department of Education 2013).

"Leadership is essential to direct change and to sustain it, and to ensure that learning remains at the centre of innovation. That requires vision, but also design and strategy to implement it."

—OECD (2013)

Action Steps for Superintendents and District Leadership Teams

- Conduct a technology needs assessment with your CTO and educators to determine whether your current technology is robust enough to support transformative pedagogy and learning environments.

- Ensure that your technology infrastructure is "future ready" for new and emerging technologies.

- Explore research and best practices—nationally and internationally—for fostering innovative learning environments.

- Provide students with technology resources for use during daily instruction.

- Seek out and visit schools that are redesigning their learning environments in innovative ways.

- Promote teacher professional development and ongoing help to use technology to support research-based best practices.

4. SUPPORT PROFESSIONAL DEVELOPMENT AND COMMUNITIES OF PRACTICE

How well does the professional development in your district match your vision and expectations for students? To animate your vision with real instructional shifts in classrooms, teachers and other educators need the same engaged, collaborative and active approaches to building knowledge and skills as students do.

Thoughtful educators and technology champions are creating new kinds of professional learning opportunities that are inspiring teachers to move their practice forward. These ideas will help you reflect on current practices and make better use of technology to support staff development:

Look at professional development through the lens of the knowledge and skills expected of students. EdLeader21 is a professional learning community of school and district leaders focused on integrating the 4 Cs (critical thinking, communication, collaboration and creativity) into education. In a seven-step blueprint to help districts and schools respond to the challenges of the 21st century, EdLeader21 advises aligning every aspect of the system to 4 Cs student outcomes—and integrating the 4 Cs into practices (Kay & Greenhill 2013).

> "With all of the rapid changes happening in education and today's world, the importance of continuous learning in my own professional life is even more critical than ever. We are all learners, and to be able to apply and create new ways of learning, we need to have both skills and knowledge. The more capable we are with technology and the more we understand the learning opportunities that become available to everyone, the better able we are to lead and inspire."
>
> Mark F. Keen, Ed.D.
> Superintendent
> Westfield Washington Schools (IN)

When it comes to supporting teachers, that means, for example:

- Motivating teachers by supporting them in developing and practicing their own critical thinking, communication, collaboration and creativity skills, so they can teach them with confidence to students

- Structuring professional development around building knowledge of the 4 Cs, such as engaging in collaborative inquiry or action research to gain a robust understanding of these skills, and examining student work for evidence of these skills and student improvement in these skills over time

- Offering opportunities for teachers to learn about, practice and reflect on different pedagogical strategies to support students in learning the 4 Cs

- Providing teachers with structured ways to examine and strengthen pedagogy and learning environments, such as learning walks, instructional coaching, meaningful teacher evaluations, and use instructional technology, such as collaborative technology, digital portfolio and assessment tools, and digital content management (Kay & Greenhill 2013)

This focused approach to professional development could be useful to your district, whatever the particular knowledge and skill sets you believe are valuable for your students to learn.

Encourage educators to collaborate and connect. Like most professions, teaching (and leading) in schools is no longer a solo enterprise. "Collaboration is an effective approach for strengthening educators' practices and improving the systemic capacity of districts and schools—and, ultimately, improving student learning" (U.S. Department of Education 2011).

Working together in professional learning communities or communities of practice, educators can access, share and create knowledge, and build professional identity, relationships and collaboration (U.S. Department of Education 2011). Districts, teachers and schools can create their own communities by bringing together educators by subject area, grade level or interests, or educators can join communities established by professional organizations. Interactions can be face-to-face or virtual, or a combination of both.

The U.S. Department of Education's Connected Educators project was designed to help educators leverage online communities of practice to connect around improving teacher and leader effectiveness and enhancing student learning.

connectededucators.org

ADDITIONAL COSN RESOURCES

CoSN used a hybrid model of professional development it its **Teaming for Transformation** initiative, which brought together 172 district leaders and 40 district teams from across the country to learn about creating student-centered learning environments. Since 2012, the initiative has included site visits to Mooresville (NC) Graded School District and Katy (TX) Independent School District, which are using technology to transform practices and results, and an online community of practice focused on the culture of instruction, scaling a digital conversion, aligned financial resources to support digital conversation, creating engaging learning environments and results-oriented professional development. *www.cosn.org/OnlineCOP*

COSN:
A LEADER FOR CONNECTED EDUCATORS

CoSN was a lead partner in the Connected Educators project. We explored opportunities for school system leaders to leverage online communities of practice to rethink professional development. The role of school districts was to facilitate and curate conversations around key district priorities.

Action Steps for Superintendents and District Leadership Teams

- Articulate a clear vision of what a 21st century classroom looks like and how the roles of educators and students are evolving.

- Conduct an audit exploring whether your professional development program is supporting teachers in making instructional shifts focused on the knowledge and skills you want to improve.

- Provide teachers with professional development that equips them to effectively integrate technology and e-learning resources into their daily instructional practices and classroom assessments.

- Work with your CTO to assess whether teachers have the digital tools they need to collaborate with their peers.

- Ensure that your district is moderating and curating an online community (or communities) of practice for your educators and participate in it yourself.

- Expect every educator to join and regularly participate in at least one online community of practice to improve their pedagogy.

- Evaluate and honor innovative professional learning and practices.

5. CREATE BALANCED ASSESSMENTS

Educators, parents and students all recognize the importance of high-stakes assessments—but they all resist the idea that summative assessment alone should drive educational decisions and practices (NWEA and Grunwald Associates LLC 2012, 2014). A balanced assessment system should include summative, interim and formative assessments—and innovative and emerging assessments.

Technology is opening up huge opportunities to transform assessments and the ways in which they can be used to improve teaching and learning. Here are some pointers that will be helpful to you in making assessments more valuable now and anticipating what's on the horizon:

Monitor student progress *during* learning, not just *after* learning—and close the loop by providing meaningful feedback to students. Effective teachers have long used interim assessments, such as quizzes before a culminating test, and formative assessments, such as classroom participation, homework and drafts of writing assignments, to check students' understanding and skills during the learning process.

Now, digital tools are empowering teachers to make greater use of assessment *for* learning—frequent monitoring of individual student learning that provides teachers and students with evidence of learning and, critically, provides students with feedback for making progress while there's still time for this to be helpful (Stiggins 2005).

For example, teachers can use classroom response systems, traditionally called "clickers," to gauge immediately whether students are following classroom instruction. Assessment resources are now embedded in:

- Learning and content management systems
- Mobile and online learning platforms and apps
- Digital textbooks and more

Teachers typically have access to these assessment results and can use them to monitor student engagement, time on task and progress toward learning outcomes. Adaptive technologies, such as intelligent tutoring systems, online courses, educational games and virtual worlds, dynamically adjust content based on usage (National Academy of Education 2013). Teachers, too, can use assessment results to adjust and adapt their instruction to better meet learners' needs (William 2011).

Providing students with timely, meaningful feedback is the hallmark of formative assessment practice—and that important follow-through doesn't always happen. The whole purpose of feedback in formative assessment practice should be to increase the extent to which students are owners of their own learning, using feedback that must provide "a recipe for future action" to improve their performance (Christensen, Johnson & Horn 2008).

Explore international assessments. The new OECD Test for Schools, based on PISA (Programme for International Student Assessment) is a student assessment tool geared for use by schools and networks of schools to support research, benchmarking and school improvement efforts.

According to OECD, the test provides descriptive information and analyses on the skills and creative application of knowledge of 15-year-olds in reading, mathematics and science. It also provides information on how different factors within and outside school associate with student performance. Information about students' socioeconomic backgrounds, their attitudes and interests in reading, science and mathematics, and the learning environment at school are all addressed.

The test could help you take the measure of your schools from an international perspective. What's particularly intriguing about the test is that it provides important peer-to-peer learning opportunities for educators—locally, nationally and internationally—as well as the opportunity to share good practices to help identify "what works" to improve learning and build better skills for better lives. EdLeader21 offers a free toolkit (Greenhill & Martin 2014) designed to support use of the OECD Test for Schools to advance district and school transformation.

Get ready for learning analytics. In the near future, the "digital ocean" (DiCerbo & Behrens 2014) will inundate your school system with data that could truly transform teaching and learning—if you know how to use it.

"We have been implementing multimodal instructional strategies to reach the learning styles and talents of all students. I am excited about the ways in which technology is enabling us to take assessments to new levels, to truly create personalized learning environments that ultimately help students succeed."

Kamela Patton, Ph.D.
Superintendent
Collier County Public Schools (FL)

In addition to the aggregate student data collected in district- and school-level dashboards and scorecards, there could be a powerful dashboard for every student. Educators will have access to a vast array of real-time and longitudinal student-level assessment results and other student data that could be used to personalize and differentiate instruction, provide customized recommendations for next steps in learning, support decisions for individual students and empower students to take ownership of their learning (see, e.g., DiCerbo & Behrens 2014).

Learning analytics is the term of art for turning "big data" into actionable intelligence. With your CTO and other educators, you'll need to carefully consider which digital assessment data is important to your district and to teachers, students and parents. And you'll need to explore the best ways to present that data so that it can be understood and used to support evidence-based practices.

Train educators to understand and use assessments and assessment data effectively. Even as exciting new assessments make their way into education, many teachers are confused about the different types and purposes of assessments, as well as the value and usefulness of assessments (NWEA & Grunwald Associates LLC 2012, 2014).

New assessments could offer teachers an incredible window into individual student learning, inform professional learning and collaboration, and give students a real voice and power to improve their own learning.

Right now, though, teachers need help to better communicate with students, parents and their peers about assessments and use assessment data more effectively to drive student learning (NWEA & Grunwald Associates LLC 2012, 2014).

Action Steps for Superintendents and District Leadership Teams

- Bring your curriculum and technology leadership teams together to define your district's vision around assessing student performance to ensure that students are college-, career- and life-ready when they graduate.

- With your district curriculum and technology leadership teams, explore new and emerging assessments that could complement your implementation of the Common Core assessments and help you create a balanced assessment system.

- Consider using the OECD Test for Schools to benchmark your district internationally and create rich learning opportunities for educators.

- Work with your CTO or district technology leadership team to plan how to use learning analytics to personalize teaching and learning.

- Build educators' capacity to understand and use assessments and assessment data effectively to improve learning outcomes for students.

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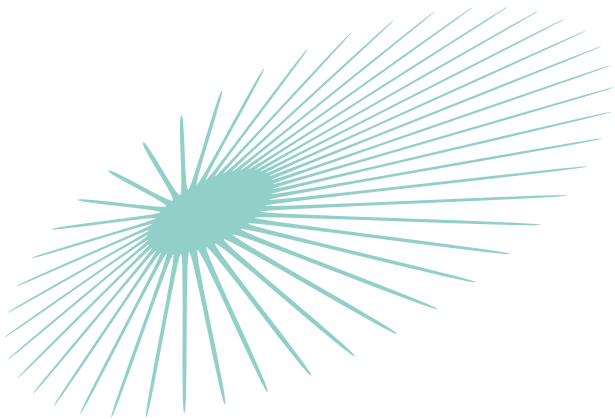Director of Schools
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