The Future Ready District: Professional Learning Through Online Communities

of Practice and Social Networks to Drive Continuous Improvement

U.S. DEPARTMENT OF EDUCATION
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November 2014

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OFFICE OF Educational Technology

Contents

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OFFICE OF Educational Technology

iv

Introduction

High-quality professional learning is integral to the continuous improvement and innovation required for addressing today's educational challenges. When integrated into a comprehensive and evidence-based system that is aligned with district goals and processes, online communities of practice and social networks offer a powerful opportunity to strengthen professional learning. From 2010 to 2011, the U.S. Department of Education's Connected Educators project, which was conducted by American Institutes for Research (AIR), investigated the role of online communities of practice and social networks in supporting the professional performance of educators. This effort yielded useful information for district leaders, and this information is summarized here:

- **Need for Integration.** Evidence for the efficacy of these avenues for professional learning and an argument for the importance of integrating them
- **Dynamic Model of Integration.** A model that explains how districts approach integration
- **Design Principles for Integration.** A set of design principles for the process of integrating and selecting professional learning strategies
- **Setting a Trajectory and Taking Action.** Using the *Future Ready Schools: Empowering Educators Through Professional Learning* toolkit to assist leadership teams in planning and evaluating their integration efforts and professional learning systems

Both the power and the potential for integrating professional learning through online communities of practice and social networks into continuous improvement processes can be observed most dramatically in the perspectives of individual educators. The following three hypothetical stories illustrate different approaches for supporting professional learning that together point to the need for better models of integration. This tool is part of the *Future Ready Schools: Empowering Educators through Professional Learning* toolkit and can be found at tech.ed.gov/FutureReady/Professional-Learning.

Three Stories About Professional Learning

Bob's Story

Bob Douglas is a middle school mathematics teacher. His district is in the process of implementing a new curriculum to align with high-quality college and career readiness standards. Teaching this new curriculum will be a big change for Bob. He will need to brush up on some of the content, and the way he teaches will change, becoming much more personalized to each student and more focused on inquiry than previously in his 10-year career. Bob's district is offering a two-day workshop the month before school begins, and one of the three professional development inservice days during the fall will focus on standards implementation. These two opportunities are enough to give him a general sense of what he should be doing, but no help is available when he runs into problems that make him want to pull his hair out during his day-to-day teaching.

Bob's principal has asked him to lead a standards professional learning community (PLC) with the other four mathematics teachers in his school, but they have been able to meet only once per month. Bob has not been given any direction or resources related to PLC organization, so he asked his colleagues to each volunteer for a meeting and share how they have been incorporating the standards into their instruction. They seem willing to share what they have done, especially if they had a successful strategy, but the exchange of experiences ends with the five of them. They have no idea where to find the "right" resources for their students and who else to turn to with their questions. They feel like they are being expected "to build the plane while flying it," so the meetings tend to turn into gripe sessions. The group seems to be as much at a loss as Bob is.

Sherri's Story

Sherri Suter is a middle school mathematics teacher. Her district is in the process of implementing a new curriculum to align with high-quality college and career readiness standards. Teaching this new curriculum will be a big change for Sherri. She will need to brush up on some of the content, and the way she teaches will change, becoming much more personalized to each student and more focused on inquiry than previously in her 10-year career. Sherri's district is offering a two-day workshop the month before school begins, and one of the three professional development inservice days during the fall will focus on standards implementation. These two opportunities are enough to give her a general sense of what she should be doing, but no help is available when she runs into problems that make her want to pull her hair out during her day-to-day teaching.

Thankfully, during Connected Educator Month (CEM) in 2012, Sherri was introduced to Twitter and joined two online communities of practice, including the Math Forum. On Twitter, Sherri asks questions of other teachers and shares resources she has found that seem to help. In the Math Forum, Sherri is part of a virtual lesson study group that is trying to figure out how to introduce irrational numbers in a way that is more effective for students. She is applying what she is learning, and her students' examination grades have improved. She participates in a standards PLC with the other four mathematics teachers at her school, but they have been able to meet only once per month, and Sherri is really the only teacher doing any "online stuff." When someone hits on a successful strategy, he or she shares it, but the exchange of experiences ends with the five of them—unless Sherri decides to share it with the online communities of practice and social networks in which she participates. Most of the other teachers have an attitude that "it's different here" and really have no other way to learn about the practices of educators outside their school.

Elliott's Story

Elliott Ray is a middle school mathematics teacher. His district is in the process of implementing a new curriculum to align with high-quality college and career readiness standards. Teaching this new curriculum will be a big change for Elliott. He will need to brush up on some of the content, and the way he teaches will change, becoming more personalized to each student and more focused on inquiry than previously in his 10-year career. Elliot's district is offering a two-day workshop the month before school begins, and one of the three professional development inservice days during the fall will focus on standards implementation. These opportunities are enough to give him a basic sense of what he should be doing.

However, the workshops and professional development days represent only some of the opportunities for learning about standards implementation. Throughout the year, a series of "flipped webinars" are being held, in which educators throughout the district come together online to discuss videos of experts and teacher leaders sharing implementation and pedagogical best practices. The school-based PLC in which Elliott participates with the other mathematics teachers in his school is linked to others in his district through a Yammer enterprise social network, and each team shares results and resources after every meeting and can post questions and ideas to the entire network.

During CEM 2012, Elliott was introduced to Twitter and joined two online communities of practice, including the Math Forum. On Twitter, Elliott asks questions of other educators and shares resources he has found that seem to help. In the Math Forum, Elliott is part of a virtual lesson study group that is trying to figure out how to introduce irrational numbers in a way that is more effective for students. Elliott is applying what he is learning, and his students' examination grades have improved. All educators in the district are encouraged to actively engage in this kind of professional learning and collaboration. At the end of each semester, Elliott presents a digital portfolio that documents his online engagement, and he is awarded continuing education units and credits toward recertification. All the members of his PLC are now connected educators. Together, they have identified the most important online communities of practice and social networks for teaching mathematics and problem-based learning, and each has agreed to monitor and participate in two such online communities of practice and social networks, creating "outposts" for the group. They are all excited about the promising practices they are discovering and working to create with colleagues across the United States. On the district network and in their face-to-face meetings, they work together to select those practices most appropriate to their local needs and adapt them to work with their students. Elliott is very pleased to see his students' scores increase, but he is even more pleased to see other educators in his school and across the district reporting the same results.

The Need for Integration

These three stories demonstrate the importance of professional learning and collaboration for successful reform, but the nature of this learning and collaboration is markedly different in each. For Bob. professional development is delivered to educators in face-to-face events during the small windows of opportunity afforded by the school calendar. Some effort is being made to support collaboration at the school level, but there is little connection to research and lessons of practice beyond the school walls. Although better than nothing. it is minimally effective.

Sherri is taking ownership of her own learning and advancing it by using online communities of practice and social networks to engage with other educators across the United States. This is making a big difference in her teaching, but school and district leaders do little to capitalize on it in the service of systemic reform. Students lucky enough to land in her class will benefit, but those who end up elsewhere might not be as well served.

For Elliott, he is learning and collaborating as an individual, and that learning is explicitly incentivized and rewarded by his district. His individual engagement in online communities of practice and social networks is intentionally linked to school- and district-based professional development and collaboration. As a result, educators in Elliot's district can improve their instructional practices in concert and see across- the-board improvements in student achievement.

As illustrated in these stories, a growing body of evidence suggests that there is a large and growing need for professional learning and collaboration. Many educators are embracing online communities of practice and social networks to meet these needs. Unfortunately, in most cases, these individually initiated efforts are not linked to school- and district-level support for collaboration and professional development.

Reform requires professional development and collaboration. In the face of pressing challenges in educational reform, such as implementation of the Common Core, as well as opportunities for innovation, such as the Maker Movement's new tools and technology (Martinez & Stager, 2013), the need for effective professional development is greater than ever before. The imperative to improve student outcomes requires not only tinkering along the edges but also transformatively changing instructional practices and school leadership. Such fundamental change necessitates intensive and sustained support for professional learning and collaboration (Dufour & Fullan, 2013).

However, districts are grappling with the challenge of providing this support in the face of shrinking budgets and competing priorities. Consequently, in many districts, educators and principals are being underserved. A 2012 national survey of teachers showed that only 28 percent received the equivalent of more than five days of training and professional development on the Common Core, and 28 percent received one day or less of training (Editorial Projects in Education Research Center, 2012).

Educators understand this need for professional development and collaboration, and many are meeting this need by using technology. At the same time that districts are struggling to provide sustained support for professional learning and collaboration aligned with their improvement agendas, a large and growing number of individual educators are using technology to learn and work together. In another 2012 national survey of educators, 82 percent reported participating in online communities of practice or social networks, which represents an increase from the 61 percent reported in 2009 (MMS Education, 2012). Even for educators who are 55 years of age or older, 75 percent reported online participation in 2012, which represents an increase from 2009 when only 47 percent reported online participation. Tens of thousands of educators participated in more than 600 webinars, workshops, community discussions, and collaborative materials development hosted by more than 400 organizations for free or at low cost during CEM, which AIR led on behalf of the U.S. Department of Education for the second time in 2011 (Office of Educational Technology, 2013; Perry, Perez-Lopez, & Cambridge, 2014). One hundred eighty-three districts and 11 states formally participated in CEM 2013. Participating educators earned thousands of digital badges, and more than 14 million people were reached on Twitter. Hundreds of active online communities for educators and dozens of online events, such as webinars and Twitter chats, are available both weekly and year round (Connected Educators, 2013).

Education organizations also see the need for professional learning and collaboration, even if they are less likely to use technology to address this need. More and more districts are addressing key instructional challenges by increasing their support for sustained collaboration by teachers, principals, and other instructional leaders at the school and district levels through site-based PLCs (Carrol, Fulton, & Doerr, 2010). This approach aligns with Learning Forward's 2011 Standards for Professional Learning, which emphasize sustained, collaborative support for learning that is clearly focused on helping students achieve at higher levels. Where collaboration is routine, teachers report higher levels of professional trust and systemic sharing of best practices (National Center for Literacy Education, 2013). However, this site-based collaboration is only beginning to be connected with the engagement of educators in online communities of practice and social networks, even in districts where there is a high level of collaborative professional learning. The work of pioneering districts beginning to make the connection is not yet widely known or understood.

Technology can provide powerful and cost-effective support for professional learning and collaboration. Past research suggests that participation in online communities of practice and social networking produces tangible benefits. Through these online social learning spaces, evidence shows that educators can effectively access, share, and create knowledge, as well as strengthen their commitment to the profession (Booth. 2011; Chen, Chen, & Tsai, 2009; Duncan-Howell, 2010; Gray, 2004; Hur & Brush, 2009; Office of Educational Technology, 2011; Schlager, Farooq, Fusco, Schank, & Dwyer, 2009; Vavasseur & MacGregor, 2008; Wang, Yang, & Chou, 2008). The direct impact on student achievement is difficult to track, but research on online professional development more generally suggests that it is at least as effective as equivalently structured face-to-face activities (e.g., see Fishman et al., 2013). Educators participating in these social learning spaces report a strong sense of ownership and investment, and the cost of supporting them is modest compared with face-to-face equivalents (Office of Educational Technology, 2011).

The Connected Educators project built on this previous research to analyze the types of value participation in online communities of practice by studying four mature communities (Cambridge, Booth, Kellogg, & Perez-Lopez, 2014). This research demonstrated that online community participation can produce all five types of value from the evaluation framework defined by Wenger, Trayner, and de Laat (2011), which built on earlier work by Kirkpatrick (1976, 1994) and Guskey (2000). The five types of value are as follows:

- **Immediate Value.** Educators experienced value immediately by participating in community activities and interactions. For example, they felt less isolated and enjoyed providing advice and encouragement.
- **Potential Value.** The accumulated knowledge, resources, and relationships as a result of their participation could prove useful in the future, which might include gaining a broader perspective by deprivatizing practices and developing a stronger sense of professional identity.
- **Applied Value.** Many educators made changes in practices by applying knowledge and resources that they learned from relationships, such as using lessons and ideas in the classroom and sharing knowledge with peers and public audiences in new ways.
- **Realized Value.** In some cases, evidence showed that these changes in practices resulted in measurable improvements in performance, such as enhanced communication and learning across schools and districts and changes in educational policies.
- **Reframing Value.** Application and results together sometimes led to a refined understanding of what constitutes professional success. This was particularly evident for teachers who previously saw their professional responsibilities as being limited to serving the students in their individual classrooms. As a result of participation, many teachers took on leadership roles and engaged in collaboration with other educators to support professional learning throughout their schools and attempted to influence the public policy that sets the conditions for their work.

These value results suggest that professional learning through online communities of practice and social networks not only improves instructional practices but also cultivates teacher leadership, which many experts recognize as central to transformative change (Berry, Byrd, & Wieder, 2013). Evidence for the association between online social learning and collaboration and teacher leadership is strengthened by analyzing the qualities of connected educators—those who make use of these opportunities for learning and collaboration-that they attributed to themselves during their participation in CEM 2013. The affinity of connected educators for teacher leadership is examined in more detail in the Design Principles for Integration section later in this brief.

A lack of access to high-speed Internet connections and overly restrictive acceptable use policies limits the reach of these new tools for professional learning and collaboration. However, the White House's work with the Federal Communications Commission on the ConnectED initiative and efforts related to reforming E-Rate suggest that the situation is likely to improve rapidly in the next five years.

Compared with education organizations, educators have been quicker to realize the potential of technology to support professional learning and collaboration. Most online learning and collaboration through online communities of practice and social networks is the result of individual educators and administrators engaging with each other on their own initiative, on their own time, and based on their own interests. However, some schools and districts are actively recognizing and rewarding this self-sponsored activity. Some also are using these avenues to support internal collaboration or harness individual engagement in the service of strategic objectives for school improvement. Once mature and if well documented and promoted, the practices that these innovators are developing have the potential to transform professional learning and collaboration in many more districts.

Connected Learning Communities

One vision of integration that intentionally capitalizes on both the grassroots character of individual connected educators' use of personal learning networks (PLNs), collective knowledge building, and deep collaboration of PLCs and online communities of practice is the Connected Learning Communities model (Nussbaum-Beach & Hall, 2012). Table 1 summarizes the three-pronged approach of PLCs, PLNs, and online communities of practice with regard to each component's method, purpose, structure, and focus.

Table 1. The Three Prongs of the Connected Learning Communities Model[1]

	Professional Learning Communities	Personal Learning Networks	Communities of Practice
Method	Often organized for educators.	Do it yourself.	Educators organize it themselves.
Purpose	Collaboration is in grade-level or subject-area teams and tasks.	Individuals gather information for personal knowledge construction or to bring back to PLC members.	Collective knowledge is built on shared interests and goals.
Structure	Face-to-face teams or groups.	Individual: face-to-face and online.	Collective: face-to-face or online.
Focus	Student achievement.	Personal growth.	Systemic improvement.

Clearly, the Connected Learning Communities model does not replace the more traditional face-to-face PLC: It incorporates it. "What's different is how it transforms the teacher's traditional network by building community offline and online, leveraging emerging technologies in building personal learning networks and global communities of inquiry" (Nussbaum-Beach & Hall, 2012, p. 26).

The Connected Learning Communities model draws on many years of research. The characteristics of successful PLCs found in the literature—collaborative learning, shared vision, reflective conversations, focus on inquiry, and improved student learning (Coggshall, Rasmussen, Colton, Milton, & Jacques, 2012; Dufour, 2004; Hord, 1997; Kruse, Louis, & Bryk, 1995; Little, 1993; McLaughlin & Talbert, 2001)—connect

[1] Used with permission from *The Connected Educator: Learning and Leading in a Digital Age* by Sheryl Nussbaum-Beach and Lani Ritter Hall. Copyright 2012 by Solution Tree Press.

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strongly to dispositions of connected learning. Many studies note openness, connectedness, and personalized characteristics in PLNs (Boyd, 2007; Downes, 2007; Johnson, Levine, & Smith, 2009; Siemens, 2003).

Those characteristics enable connected educators to seek and choose resources and ideas for their personal learning and then take those ideas into their communities where they can develop deeper understanding. Communities of practice often grow from existing networks, yet they are characterized by a common concern, deep collaboration in practice, and the goal of improving practices by collectively constructing knowledge (Wenger, 1998; Wenger, MacDermott, & Snyder, 2002).[2]

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[2] The research base most relevant to connected learning and the digital age; the underlying theories, experience, and knowledge that educators bring to learning; the effectiveness of educator professional learning; anticipated growth or decline, challenges, and dilemmas; as well as the use of technology associated with PLCs, PLNs, and online communities of practice are discussed in detail in Appendix A of *The Connected Educator: Learning and Leading in a Digital Age* (Nussbaum-Beach & Hall, 2012).
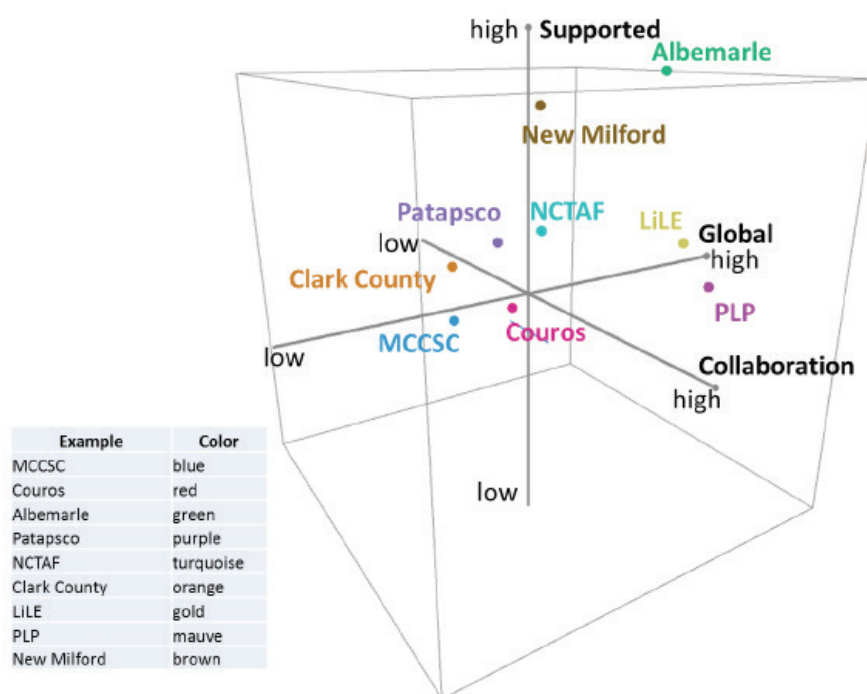
Dynamic Model of Integration

The Connected Learning Communities model provides a conceptual vision of how different forms of professional learning and collaboration can work together to support continuous improvement. An analysis of contemporary examples yields a complimentary model that suggests paths toward this ideal, recognizing that progress might need to be incremental as each district begins from its own existing culture and processes in place. During the course of 2011, Connected Educators project staff collected examples of the integration of professional learning through online communities of practice and social networks into districts' formal support for professional learning and collaboration. Details of these examples were collected through informal interviews with district leaders. The examples differ along three dimensions:

- **Individual to Collaborative.** Is the focus purely on individual educators learning to serve their own needs and interests? Are they working in loose coordination with others or are they working in teams to learn in a structured and sustained way that addresses collective objectives? Are intentional connections made among individual, self-sponsored learning, and organizationally supported collaboration?
- **Low Support to High Support.** To what extent is the learning in question actively supported by districts and schools, as evidenced by school culture, an investment of resources, the structure and the content of programming, the allocation of protected time, and recognitions and rewards?
- **Local to Global.** To what extent do learning and collaboration work across sites? Do learning and collaboration engage educators across subjects in a school or leaders across a district? Do educators connect with broader national or international networks of educators? Do teams connect with other teams addressing similar challenges outside their local contexts?

Figure 1 maps these three dimensions visually and places each subsequent district example within the model. This model is primarily descriptive: It is designed to examine the different trajectories that actual districts have taken and could take in initiating and deepening integration. In most cases, systematic evidence about the effectiveness of the approaches taken does not exist. However, the more general research base surveyed in the Design Principles for Integration section suggests that professional learning that is more collaborative, more highly supported, and more globally connected could likely lead to greater improvements in performance. The districts discussed in this section, which were chosen to be representative of the larger set of districts pursuing integration of which Connected Educators is aware, have moved in at least one of these directions.

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FIGURE 1. INTEGRATION MODEL WITH EXAMPLES

Example	Color
MCCSC	blue
Couros	red
Albemarle	green
Patapsco	purple
NCTAF	turquoise
Clark County	orange
LiLE	gold
PLP	mauve
New Milford	brown

Examining the paths to integration across these three dimensions suggests four paths toward integration:
- Encourage voluntary individual learning
- Formally support individual learning
- Support bounded collaborative learning
- Cultivate connected collaborative learning

Each of the following examples points both to achievements in integration and ways in which a district can more fully move toward a professional learning system that marries (1) the individual and collaborative and (2) the local and global with high support throughout. This is not intended as a critique of the efforts of the leaders of these districts, each of which is commendable in the substantial progress made. The change envisioned by the Connected Learning Communities model and the three dimensions is transformative, and districts most closely approaching it have arrived there after many years of work.

Encouraging Voluntary Individual Learning

For some districts, a first step toward integrating professional learning through online communities of practice and social networks with formal professional development programming is to encourage voluntary individual learning using these opportunities. Leaders in such districts seek to motivate educators to become connected or deepen their existing connections by actively endorsing such activities.

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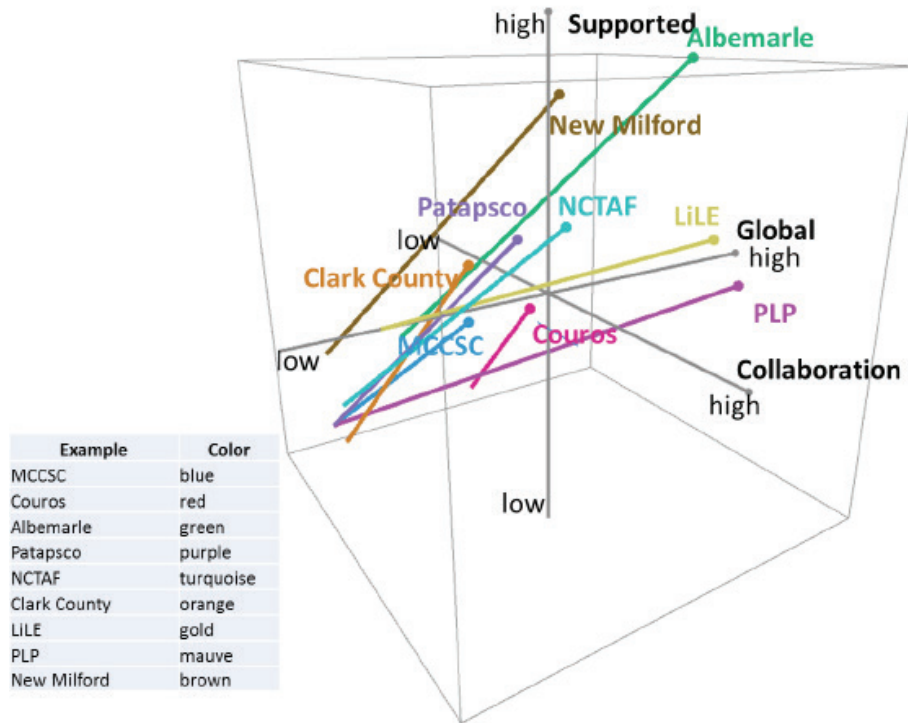Two key strategies that leaders can use are as follows:

- **Provide Awareness of Value.** Leaders aim to make teachers, principals, and other education personnel aware of opportunities for informal online social learning and suggest that such opportunities will prove valuable. This might be done by highlighting opportunities in newsletters and websites or by introducing available resources during face-to-face professional development sessions. In districts where many educators have already begun to connect, social media can be used to spread the message.
- **Model Participation in Online Communities of Practice and Social Networks.** When leaders participate publicly in online communities of practice and social networks in service of their own learning and in support of others', they send a powerful message that such participation is valued. Leaders participating online show that it is appropriate to share challenges, triumphs, untested ideas, and carefully conceived plans.

Monroe County Community School Corporation (MCCSC), which is based in Bloomington, Indiana, used CEM 2013 and follow-up events to implement the first strategy. MCCSC is a medium-sized district in south central Indiana that recently began a digital transition project. Technology and professional development leaders in MCCSC used CEM 2013 as an opportunity to encourage educators to learn more about how they could integrate technology into their teaching. Through e-mail and social media, these leaders encouraged educators to participate regularly throughout the month. The next month, MCCSC brought in a CEM 2013 producer to lead in-service professional development workshops on becoming a connected educator and making global connections for students. MCCSC leaders publicly recognized educators doing innovative work and applauded their engagement on social networks and online communities of practice. Social networking sites are not blocked on MCCSC wireless networks.

However, MCCSC has not yet determined that it is ready for professional learning through online communities of practice and social networks (e.g., through continuing education units, release time, or stipends). Consequently, educators who wish to engage do it on their own time and initiative and might or might not align their online actions with shared improvement goals.

By encouraging participation, MCCSC has made a significant shift from a sole focus on professional development at the local level to embracing individual global connections. It also has moved from a minimal to a basic level of support for connected professional learning. However, it remains focused primarily on individual learning rather than substantive collaboration. This trajectory is illustrated in Figure 2.

FIGURE 2. PAST TO PRESENT TRAJECTORIES

Example	Color
MCCSC	blue
Couros	red
Albemarle	green
Patapsco	purple
NCTAF	turquoise
Clark County	orange
LiLE	gold
PLP	mauve
New Milford	brown

George Couros, the division principal for Parkland School Division in Stony Plain, Alberta, Canada, is a leader who exemplifies the second strategy. He helps others in his school and district feel more comfortable in engaging in collaboration and online learning through leading by example. Couros is very much a connected educator, regularly tweeting about his work and ideas to a large following, presenting about online professional learning, and blogging frequently, on his own blog and on Connected Principals, including about what it means to be a connected educator. Many of his colleagues are regular participants in online communities of practice and social networks, likely in part because of his example. However, as with MCCSC, this individualized learning and collaboration is not yet formally recognized by the district or aligned and integrated with school- and district-sponsored professional development. As seen in Figure 2, Couros' modeling moves Parkland from the individual significantly in the direction of global and provides modest increases in support but does not yet shift the focus from individual learning to collaboration.

Formally Supporting Individual Learning

Encouraging participation in networked professional learning is a positive first step, but many educators need substantive support in the form of resources and recognition to be motivated to take full advantage of these opportunities for maximizing their individual professional learning. Many schools and districts have begun to find ways to "make it count" by allowing flexibility in the professional learning activities that fulfill requirements and providing time to engage in them. In this model, educators usually need to show how their individual pursuits align with outcomes shared at the school or district level. The key strategies for formally supporting individual learning include the following:

- **Document and Evaluate Participation.** Microcredentials (such as digital badges and certificates) or digital portfolios can be used to document and evaluate participation. Providers of professional learning opportunities increasingly offer certificates or badges that attest to activity completion. Digital badges often include evidence that documents participation and its impact on practice (Hickey et al., 2014; Riconscente, Kamarainen, & Honey, 2013). With the Open Badges lnfrastructure, educators can collect badges from multiple issuers and reflect on their significance related to shared goals and standards. These badges, along with other evidence, can become the basis of digital portfolios that provide an integrated picture of professional learning and its effects on a educator's practice.
- **Allow Time for Participation.** Even in the face of mounting evidence of the importance of collaboration for improving instruction, the average amount of time for collaboration that teachers have during the school day has shrunk in recent years (National Center for Literacy Education, 2014). Counter to this trend, some districts and schools are beginning to carve out more protected time for collaboration and professional learning. In a few cases, educators may use this time to engage in networked professional learning as well as face-to-face collaboration.

Albemarle County Public Schools in Charlottesville, Virginia, makes extensive use of social media to support professional learning, as detailed in a profile online at tech.ed.gov/FutureReady/Professional-Learning. One reason for widespread adoption is that leaders make it count. Albemarle leaders not only encourage participation in online communities of practice and social networks as well as model it through their own regular and enthusiastic participation, but also they have developed district policies that award professional development credits for informal online professional learning (such as using Twitter) that conform with the Commonwealth of Virginia's rules on teacher recertification. To receive credit, teachers present a portfolio containing evidence of their online engagement. how it has made a difference in their classrooms, and how it aligns with the Seven Pathways from the Design 2015 Plan that set collective priorities for improvement and innovation across the district.

In providing formal ways for individual participation to count, Albemarle leaders significantly increased their level of support for professional learning that was globally connected rather than inward looking. However, the focus on alignment between individual participation and collective goals through the Seven Pathways is beginning to shift the focus toward the truly collaborative. These shifts are illustrated in Figure 2.

Eric Sheninger, the principal at New Milford High School in New Milford, New Jersey, is a model connected educator. He distributes professional development credit for connected and networked learning alongside more conventional offerings and uses digital badges and portfolios to document professional learning. To address the challenge of having enough time to engage in online professional learning, Sheninger has

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established a regular 40-minute "professional growth period" when teachers can engage in self-selected professional learning activities, including participation in online communities of practice and social networks (Connected Educators, 2012; Sheninger, 2011).

By providing formal mechanisms for receiving credit, New Milford's level of support for individual connected professional learning moved to a very high level. Consequently, teachers are increasingly motivated to connect globally as well as within their local contexts. However, the focus remains primarily on individual learning rather than more structured and sustained collaboration. This trajectory toward higher support and more global connection is reflected in Figure 2.

Supporting Bounded Collaborative: Professional Learning

Collaborative professional learning in the Connected Learning Communities model means more than just learning through social engagement with other educators. Rather, it involves engaging in sustained group activities that produce not only increased individual knowledge but also tangible products and shared outcomes aligned with the goals of the group(s) and the institution(s) with which the participating educators are associated. This sort of collaboration aligns with the research and the standards for high-impact professional learning outlined earlier in this brief. Several key strategies are emerging for supporting collaborative professional learning:

- **Form and Support PLCs and Other Collaborative Learning Groups.** PLCs have been implemented and studied in schools across the United States, but they have been defined and structured differently in different contexts. Most, however, are genuinely collaborative. Some schools and districts are adding a range of additional innovative collaborative structures, such as critical friends groups and Edcamps.
- **Form and Support Instructional Teams.** Collaboration is not only a means not only in preparing to teach but also is central to how teaching and learning are structured. In some schools and districts, educator teams (sometimes with outside experts and students) are working together to teach comprehensively as a team. Although professional learning is not the primary objective of this form of collaboration, it is likely to be a valuable product of it.
- **Use Technology to Support PLCs and Instructional Teams.** Social learning and collaboration technologies can increase the effectiveness of teams, allowing them to work together across time and distance as well as offering new media and genres for sharing results.

Patapsco High School in Baltimore County, Maryland, engages educators in collaborative learning through "Patapsco University," as detailed in a profile online at tech.ed.gov/FutureReady/Professional-Learning. The university offers some individual learning opportunities for which educators can earn credit hours that meet annual continuing education requirements, but most of the supported activities are genuinely collaborative. In addition to forming traditional PLCs, educators can form groups of critical friends to examine and improve instructional practices, engage in paired lesson study, or organize Edcamps on topics of mutual interest. The results of these shared inquiries can be incorporated into a Patriot Pedagogy resource for educators throughout the district.

With this broad set of collaborative learning options, Patapsco shifts from a sole emphasis on individual learning to a strong emphasis on collaboration. The structure provides a high level of support for individual and social professional learning. However, this learning remains focused mostly on school and district levels rather than engaging with national and global communities. Patapsco's path is represented in Figure 2.

The National Commission on Teaching and America's Future developed its STEM (science, technology, engineering, and mathematics) Learning Studios model to take site-based collaboration to the next level, making it central to not only professional learning but also teaching itself. In STEM Learning Studios, cross-subject teams of teachers, scientists, and engineers from the surrounding community, along with students, work together on yearlong projects to investigate key STEM challenges (National Commission on Teaching and America's Future, 2014). For example, at Violette Elementary School in Baltimore, Maryland—one of several schools in the Baltimore City Public Schools developing STEM Learning Studios—teachers and students in Grades 3–8 are engaging in investigations of access to healthy food in their community, tracking their own eating habits, mapping out food deserts with the assistance of experts from the National Institutes for Health and the Baltimore Food Policy Initiative, and developing strategies for advocating for change (National Commission on Teaching and America's Future, 2013).

STEM Learning Studios transform instruction, as well as professional learning occurring along the way, by offering one of the most thoroughly collaborative models in operation, with a very high level of support being offered by the school, the district, the National Commission on Teaching and America's Future, and other national organizations supporting the initiative. Involving local experts in instruction begins to move past the local, but only the beginnings of support for cross-site collaboration between teams or integration with national and global online communities of practice and social networks are currently present. The trajectory of the STEM Learning Studios is shown in Figure 2.

Clark County School District in Las Vegas, Nevada, is a large, urban district in the process of implementing the Common Core State Standards. To support curriculum development and teacher professional learning during this process, the district developed Bringing Learning and Standards Together (BLAST), a program that uses technology to support collaboration related to Common Core implementation, as detailed in a profile online at tech.ed.gov/FutureReady/Professional-Learning. The BLAST website offers online learning modules tied to the Common Core that were developed by teams of educators from the district drawing on the best available open educational resources. Teachers choose which modules are appropriate for their learning needs and are encouraged to work through the modules in teams, collaborating both face-to-face and through associated groups formed on Edmodo (an education-specific social networking platform).

BLAST is distinctive in its focus on collaboration to curate content so that it is aligned with local needs and subsequent collaborative learning using that content during actual Common Core implementation, making a challenge that each teacher otherwise would face individually a shared one. By funding the adaptation of content, giving teachers credit for their learning as they use that content, and offering online spaces and tools for collaboration, the district provides a high level of support. Whereas Edmodo makes cross-site collaboration much easier and opens up the possibility of linking with other individuals and groups on the broader network, BLAST's primary focus is on engagement within the district rather than more global links. The changes that BLAST brings to Clark County can be seen in Figure 2.

Cultivating Connected Collaborative Professional Learning

Connected collaborative professional learning combines strategies from the other three paths to integration to comprehensively embrace both individual and collaborative professional learning aligned with shared objectives at the local, national, and global levels, encouraging connections between them. This path to integration of professional learning through online communities of practice and social networks with formal professional development uses individual connected educators strategies in the context of more intensive, blended local collaboration. Distinctive to this approach is a focus on national and global collaboration between not only individual educators but also site-based educator teams.

Two national projects exemplify support for this multilevel, team-based collaboration. The first is the Literacy in Learning Exchange, an online community of practice developed by the National Center for Literacy Education to support collaboration between cross-subject teams of educators and others working to improve literacy instruction in their local contexts. The Exchange features some profiles of teams at work, along with resources they have generated and tools to help teams structure their work, such as an Asset Inventory.[3] Teams can earn the designation of "Literacy in Every Classroom School" for their school buildings by documenting their collaboration on the Exchange and interacting with other teams to build the collective understanding of effective practices. However, to date, the Exchange's focus has been primarily on collaboration within the community, not on cross-connections with other online communities of practice or social networks or intentional integration of individual educators' self-sponsored learning through other online spaces.

The teams first to participate in the Exchange were already engaged in substantive local collaboration to which their participation added collaboration at a national level. In addition to the local support they already received, they gained access to a high level of support at the national level from peer teams and the National Center for Literacy Education staff and stakeholder organizations. These shifts are illustrated in Figure 2. As the Exchange grows, it is increasingly supporting newly formed teams, leading to increased collaboration at the local level as well.

Powerful Learning Practice's Connected Learner Experience is an example of a program that supports teams of educators collaborating and learning not only within their schools or districts but also through a national social media network with substantial experts within the sponsoring organization (Nussbaum-Beach, 2012; Powerful Learning Practice, 2013). Like the Literacy and Learning Exchange, site-based teams participating in the Connected Learner Experience work collaboratively with other teams across the United States or globally as well as those within their region. During a seven-month period, teams are coached through a process of completing a collaborative action research project. For example, teachers from William Penn Charter School in Philadelphia, Pennsylvania, investigated effective strategies for using virtual field trips to enhance learning, reduce costs, and produce online resources for use in planning such events across the school. Distinctively, participants also are encouraged to develop their individual PLNs and develop the skills and dispositions of a connected educator. Using a wide range of online community of practice and social networking tools rather than a single platform, participants weave together their individualized passion-based learning and their shared work on challenges of improvement and innovation facing their schools and
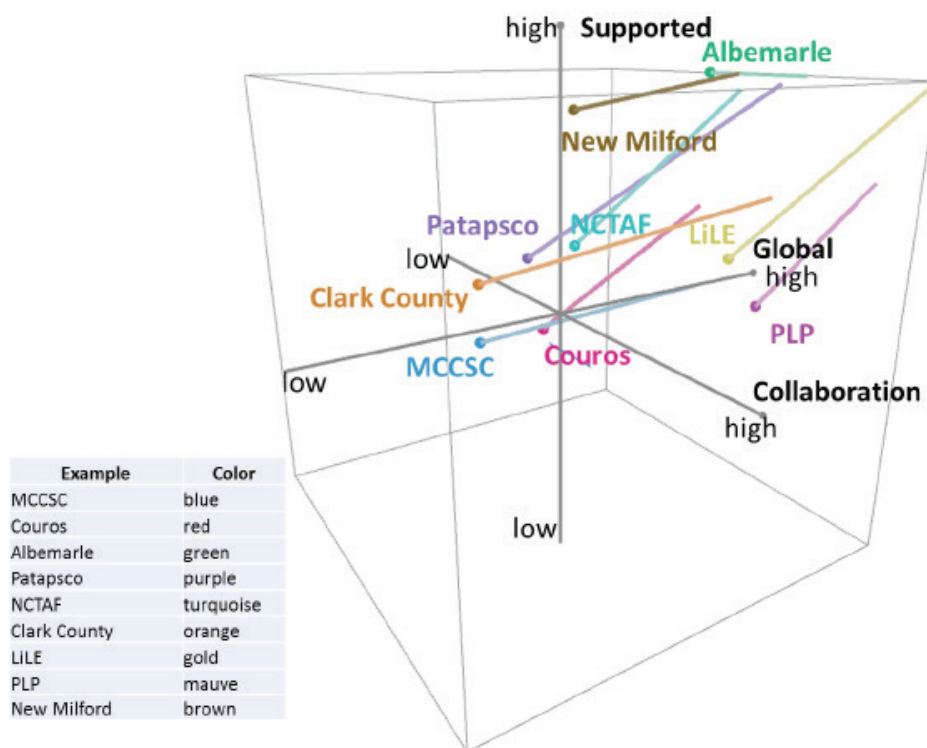
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[3] The exchange was a subject of multiple case study research conducted by the Connected Educators project on newly launched communities during their first year of operation. For a more detailed analysis of the project, see Cambridge et al. (2014).

districts. Participants can receive graduate credit to recognize their learning during the Connected Learner Experience. After completing it, many participants continue to stay engaged with each other, as individuals and teams, through Powerful Learning Practice's online community and social media network (#PLPNet): They identify themselves as "PLPeeps." Teams formed through the Connected Learning Experience receive a high level support both for increasing their individual learning and in learning in collaboration with others at the local, national, and global levels, leading to significant shifts across all three dimensions in Figure 2.

Summary

Across the four paths, the featured examples show a shift toward increased focus on collaboration, higher levels of support, and more global connections. Each effort is commendable, but all can continue to improve. MCCSC, for example, might increase its level of support for individual learning by formally recognizing online participation with continuing education credit and doing more to help cultivate site-based collaborations related to digital transition challenges and opportunities. Even the most comprehensive approaches have room for growth. Powerful Learning Practice's work, for example, might be expanded to more strongly support the collaborative projects engaging multiple site-based teams that some participants choose to take on as they engage with each other through the network. Some possible trajectories for deepened integration of learning through online communities of practice and social networks into official professional development and support for collaboration for each example are presented in Figure 3.

FIGURE 3. POSSIBLE PRESENT TO FUTURE TRAJECTORIES

Example	Color
MCCSC	blue
Couros	red
Albemarle	green
Patapsco	purple
NCTAF	turquoise
Clark County	orange
LiLE	gold
PLP	mauve
New Milford	brown

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Design Principles for Integration

The integration of online communities of practice and social learning networks into systematic continuous improvement and innovation is a relatively new frontier. However, there is a decades-long history of research and practice devoted to improving professional learning—face-to-face, blended, and online—on which to build integration plans. This body of knowledge suggests several design principles that gird the approach to integration supported by the *Future Ready Schools: Empowering Educators Through Professional Learning* toolkit (Rasmussen et al., 2014):

- Invest in instruction-related professional learning—online, blended, and face-to-face.
- Tap local educator knowledge and experience and further build capacity for leadership in professional learning.
- Identify research- and standards-based professional learning strategies likely to impact teaching and learning.
- Align professional learning strategies with the continuous improvement process.
- Approach the way professional learning works systemically.

These design principles should prove useful to district leaders as they consider strategies from the examples in the previous section and develop their own plans to integrate online communities of practice and social networks in a way that is collaborative, individual, global, and local, as well as highly supported in all dimensions.

Invest in Instruction-Related Professional Learning

The first and perhaps most obvious principle is that professional learning is essential and merits substantial investment. Only in the context of a strong district commitment to professional learning, in resources as well as rhetoric, are integration efforts likely to thrive. There is consensus among researchers and education leaders that educators have the greatest impact on student achievement (Haycock, 1998; Laine, 2011; Sanders & Rivers, 1996). It also is known that leadership is second only to teaching among school-related factors in its impact on student learning. Furthermore, the impact of leadership tends to be greatest in schools where the learning needs of students are most acute. One of the key ways in which leaders in highly supportive districts achieve this impact is by developing people and providing them with high-quality professional learning and other necessary supports to succeed (Bottoms, Schmidt-Davis, & Southern Regional Education Board, 2010; Leithwood, Seashore Louis, Anderson, & Wahlstrom, 2004; Ohio Leadership Advisory Council, 2008; Togneri & Anderson, 2003).

Highly supportive districts elevate the importance of professional learning and identify it to staff and the community as instrumental to the success of all learners—students, educators, principals, and district leaders.

The strategies of highly supportive districts include the following (Bottoms et al., 2010):

- Instead of one-shot workshops and popular topics, make professional learning job embedded and relevant. Job-embedded professional learning is learning that is grounded in day-to-day activities and designed to enhance instructional practices with the intent to improve student learning. It is integrated into the workday, primarily school or classroom-based involves educators assessing and finding solutions to authentic and immediate problems, and is part of a cycle of continuous improvement (Croft, Coggshall, Dolan, & Powers, 2010; Darling-Hammond & McLaughlin, 1995; Hawley & Valli, 1999; Hirsh, 2009).[4]
- Provide instructionally related professional learning to district staff (as well as educators and principals) to build their capacity to support principals and schools.
- Offer professional learning in the form of mentor and induction programs for new principals to build their capacity for instructional leadership.
- Have principals and educator-leaders work together on teams to address pressing instructional problems.

Among the greatest challenges that districts must address to support relevant, job-embedded, collaborative professional learning are diminishing resources:

- Limited time, especially for collaboration
- Inadequate professional learning funding
- Reduced access to expertise and reliable and valid instructional resources

Technology enables districts to address some of the resource issues, including easy access to high- quality content and expertise, and provide opportunities for more focused, relevant, and just-in-time professional learning. To best use technology, districts may need to solve some additional problems, such as the following:

- Lack of broadband access
- Acceptable use policies that block social media
- Lack of comfort with and training in the use of technology
- Lack of recognition and incentives for engaging in connected professional learning

A comprehensive and systematic process for strengthening professional learning is needed to overcome these challenges. An example of a district that has undertaken such a process is Gaston School District in Gaston, Oregon (Killion, 2013). It dealt with the dilemma of increased demand for professional learning to support transition to the Common Core State Standards at a time of acutely decreased resources. Unwilling to derail ongoing professional learning efforts, the superintendent formed a team of central office staff, principals, and educator representatives to identify needs and generate options. The superintendent agreed with the team's priority recommendations for more time for collaborative professional learning and greater access to

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[4] An issues brief titled *Job-Embedded Professional Development: What Is It, Who Is Responsible, and How to Get It Done Well* (Croft et al., 2010) provides a range of examples and formats, including PLCs, for this powerful form of professional learning. It also identifies ways in which state. district. and school leaders can support high-quality. job- embedded professional learning.

effective instructional resources. He then set multiple actions in motion to address those recommendations, including the following:

- Work with principals to develop school-day schedules to provide regular and frequent collaboration time for educators.
- Work with central office staff to support professional learning teams focused on instruction for the new standards-based curriculum and establish subject-specific review teams to select, align, and share free and effective resources.
- Form a cross stakeholder team to study effective face-to-face and connected professional learning and develop an implementation plan.
- Explore potential financial support from the local education foundation and neighboring districts to provide technology-based support for instructional resources.

Gaston School District reflects the complexity of comprehensive integration-its challenges and the merits of taking parallel and systematic actions toward integrating professional learning in online communities of practice and social networks with face-to-face professional learning and the district's formal support for professional learning. The result was that in less than six months, the superintendent and district and school leadership set Gaston on a trajectory for significant positive change. Such a comprehensive and systematic change process is likely necessary to reproduce results like those reported in the previous section and realize the full potential of the connected learning community vision.

Tap Local Teacher Knowledge and Experience and Further Build Capacity for Leadership in Professional Learning

Successful continuous improvement processes and professional learning systems are increasingly drawing on teacher leadership. The Connected Educators project also developed a profile of the individual connected educator, in which a central tenet is assuming a teacher leadership role. The profile was developed by collecting and analyzing qualitative data from CEM 2013 when hundreds of thousands of educators participated in more than 600 education- and technology-related events and associated social media conversations throughout October (Perry et al., 2014).[5]

> **"** *Connected educators are as diverse as their interests. Their characteristics and strategies are complex and interdependent, but each is grounded in a passion for their work, a drive to find solutions, and a willingness to engage with a broader community.*
>
> (Perry et al., 2014, p. 5)

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[5] See Cambridge et al. (2014) for specific examples of the characteristics and the practices of connected educators and specific actions for becoming a connected educator and assuming a leadership role in support of connected professional learning.

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Connected educators commonly have the following characteristics:

- Consider themselves to be lifelong learners and view online interaction as a means to grow personally and professionally
- Use online technologies to enhance their face-to-face collaborations and relationship building, not necessarily replace them
- Are change oriented and value new and differing perspectives
- Use multiple modes of connection and communication to learn and share what they do
- Invest in their students' and their profession's impact on society, sometimes engaging in social issues and policy debates
- Make connecting a way of life, not an add-on, and recognize it is an essential part of their day that transforms both their professional and personal lives

These characteristics echo themes from the Teacher Leader Model Standards developed in 2011 by the Teacher Leadership Exploratory Consortium to codify and support educator leadership as a means to transform schools to successfully meet the needs of 21st century learners. The standards consist of seven domains that describe the dimensions of teacher leadership, including fostering a collaborative culture (domain I) and promoting professional learning for continuous improvement (domain III). The standards document differentiates teacher leadership from other school leader roles and aligns the Teacher Leader Model Standards with the Interstate School Leaders Licensure Consortium's 2008 Educational Leadership Policy Standards and the Interstate Teacher Assessment and Support Consortium's 2011 Model Core Teaching Standards.

The Teacher Leader Model Standards are part of a growing movement to expand teacher leadership within the profession. The Center for Teaching Quality promotes the concept of *teacherpreneurs*, teachers who seek to improve the quality of education through innovation, leadership, publishing, policy, research, and entrepreneurship (Berry et al., 2013). It also hosts an online community of practice, which was the subject of Connected Educators research (Cambridge et al., 2014), to support teacher leaders nationwide. Many connected educators are on the forefront of this movement with the kind of collaboration and professional inquiry needed to meet 21st century learner needs.

The Professional Learning Readiness Self-Assessment Tool, the first tool in the *Future Ready Schools: Empowering Educators Through Professional Learning* toolkit, is designed for a leadership team to discuss and assess face-to-face and virtual professional learning capacity that exists in a district and across its schools. The assessment items describe conditions found in districts with a high capacity for leading, supporting, and sustaining effective, comprehensive professional learning. Several behaviors described in the toolkit reinforce connected educators' suggestions for the role of leadership in professional learning, such as leaders modeling good digital learning behaviors by actively using social media and learning tools and providing time for staff to engage in online social learning activities (Perry et al., 2014).

Superintendents should invite some of their district's connected educators to be part of the leadership team so that the district can tap their knowledge and experience in online professional learning and harness their energy and passion for it, while building their capacity for leadership of well-integrated, comprehensive professional learning.

Identify Research- and Standards-Based Strategies Likely to Impact Teaching and Learning

Even with a strong commitment to professional learning and the involvement of teacher leaders, developing a powerful plan for integration is not easy. It is an ongoing challenge for districts to identify the most defensible and doable, evidence-based professional learning models and strategies to support integration. It is time consuming to stay current with research and sometimes difficult to judge the fidelity of the results. It often requires additional time and decision making to align strategies with standards. After educators have a clear and credible understanding of a strategy, it still can be difficult to determine how the strategy can best be applied to the district goal in the context of a district's schools and classrooms. Yet these actions are instrumental in identifying and refining professional learning strategies that are likely to impact educator practice and student learning.

> **"** *Teachers who receive substantial professional development—an average of 49 hours in the nine studies—can boost their students' achievement by about 21 percentile points.*
>
> (Yoon, Duncan, Lee, Scarloss, & Shapley, 2007, p. iii)

As part of the effort to support and guide districts in developing defensible and well-integrated professional learning strategies, this brief and the *Future Ready Schools: Empowering Educators Through Professional Learning* toolkit have examined the evidence base and distilled the findings into the key characteristics of high-quality professional learning. Those characteristics also have been aligned with standards. The most significant qualities of any professional learning experience, whether online and connected, blended, or face-to-face, are as follows:

- **Intensive and Sustained Learning.** Effective professional learning is focused on discrete topics examined thoroughly and provided in a practical manner that is easy to apply to practice. This allows teachers to observe the connection between content and practice more easily and sustain the use of learned strategies (Darling-Hammond, Wei, Andree, Richardson, & Orphanos, 2009). lt involves receiving substantial contact hours of professional development across a period of time (Darling-Hammond et al., 2009; Garet, Porter, Desimone, Birman, & Yoon, 2001; Parsad, Lewis, & Farris, 2001; Porter, Garet, Desimone, Yoon, & Birman, 2000; Yoon et al., 2007).
- **Collaborative.** Collaborative teams and relationships among colleagues, who can learn and problem solve together, create support systems for teachers, and maintain consistency across instruction. Teachers who participate in professional learning with extended duration, content focus, and active learning strategies develop more confidence and expertise in practice through collaboration and collegial interactions, that expertise spreads among teachers (Blitz, 2013; Croft et al., 2010; Darling-Hammond et al., 2009; Killion, 2014; Mundry, 2005; Owston, Wideman, Murphy, & Lupshenyuk, 2008; Sun, Penuel, Frank, Gallagher, & Youngs, 2013).
- **Focused on Improving Content and Pedagogical Knowledge and Skill.** Teachers who are engaged in building content and pedagogical knowledge are better able to understand how students learn and think critically about teaching practices and the learning experience (Archambault, Wetzel, Foulger, & Williams, 2010; Mundry, 2005).

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- **Aligned With School and District Goals.** Effective professional learning is integrated into the school and district culture and is part of a larger initiative aimed at school and student improvement. Stand-alone or siloed programs of professional learning are less likely to be prioritized by teachers, especially if there is no concrete connection to other reform efforts in the school (Darling-Hammond et al., 2009; Garet et al., 2001; Mundry, 2005; Parsad et al., 2001; Porter et al., 2000).

- **Ongoing.** An example of effective ongoing professional learning is job-embedded professional development. It involves teachers continually assessing classroom situations and finding solutions for immediate problems. Effective professional learning intentionally develops continuity, providing initial and follow-up activities, and interspersing face-to-face experiences with online experiences throughout the school year (Armstrong & Earle, 2012; Coggshall et al., 2012; Croft et al., 2010; Darling-Hammond et al., 2009; Mundry, 2005; Owston et al., 2008).

- **Actively Supported by Leadership.** Principals and administrators ensure that there is appropriate time and other resources for professional learning and collaboration. They understand effective instruction, and they may participate in teacher learning and feedback. Supporting teacher professional learning also includes providing opportunities for professional leadership and growth among teachers and influencing policies to support professional learning efforts and integration into the school culture (Blitz, 2013; Croft et al., 2010; Mundry, 2005). Leaders also see themselves as learners and model the learning processes they desire for their staff to embrace (Perry et al., 2014).

- **Designed to Include Reflection.** Effective professional learning should prompt reflection by engaging a teacher's purposeful thinking about a lesson plan or a teaching experience to identify problems and understand why those problems occurred. Successful reflection helps teachers grow professionally, enabling them to think in new proactive ways about their teaching practices (Coggshall et al., 2012; Croft et al., 2010; Danielson, 2009).

- **Designed to Include Feedback.** Team and one-on-one collaborations are not merely for group problem solving; they also provide a method for feedback. Teachers learn best from timely, focused feedback about their teaching, grounded in evidence that they receive as part of coaching, observation, or evaluation. The extent to which teachers learn from this evidence-based feedback and use it to change their practices depends, in part, on the skill of the individuals providing the feedback. Its effectiveness also depends on whether there are opportunities for teachers to practice their developing skills and receive follow-up feedback (Blitz, 2013; Coggshall et al., 2012; Croft et al., 2010; Danielson, 2009; Mundry, 2005).

This list of qualities is consistent with Learning Forward's (2011) Standards for Professional Learning, which synthesize nearly 30 years of research on professional learning. These seven standards—focusing on learning communities, leadership, resources, data, learning designs, implementation, and outcome—are meant to work in partnership with one another. "Learning Forward asserts that. when professional learning incorporates the indicators of effectiveness defined in its standards, educator effectiveness and student learning increase" (2011, p. 15).

The *Professional Learning Strategies Self-Assessment Tool*: Part 1, the second tool in the *Future Ready Schools: Empowering Educators Through Professional Learning* toolkit, aligns 20 research-based characteristics—including the qualities described previously—of high-quality online and connected, blended, and face-to-face professional learning strategies with the appropriate Standards for Professional Learning. Part 2 aligns additional research-based characteristics of high-quality online and connected professional learning strategies with designated technology standards: the International Society for Technology in Education (ISTE) teacher

(2008), coach (2013), and administrator (2012) standards, as well as the National Standards for Quality Online Teaching (2011). These are standards of excellence and best practices in teaching and leading with technology and are grounded in years of research. The primary standard areas, meant to work in concert with one another, include practices that do the following:

- Adopt digital age dispositions and values
- Facilitate and inspire learning and creativity
- Design and develop digital-age learning experiences and assessments
- Promote student success through clear expectations, prompt responses, and regular feedback
- Model digital-age work and learning
- Promote and model digital citizenship and responsibility
- Engage in professional growth and leadership
- Engage in systemic improvement

For the district that is developing online professional learning experiences or selecting already available experiences—such as webinars, Twitter chats, online conferences, massively open online courses, other online courses, and online communities of practice—the *Future Ready Schools: Empowering Educators Through Professional Learning* toolkit has an *Online Professional Learning Quality Checklist* that enables the user to evaluate the degree to which each type of online learning experience represents unique characteristics of effectiveness. The checklist is aligned with these standards and the research on which they are based.

The primary purpose of these self-assessment tools is to support districts in planning, integrating, and implementing professional learning for continuous improvement. The toolkit contends that the more evidence-based characteristics a professional learning strategy exemplifies, the more likely the strategy is to have a significant and sustained impact on teaching and learning.

Align Professional Learning Strategies With the Continuous Improvement Process

As noted, one of the most significant evidence- and standards-based characteristics of professional learning is intentional alignment to improvement goals. Well-aligned professional learning programs are given more priority by teachers (Darling-Hammond et al., 2009; Mundry, 2005), and a set of interrelated research studies found that coherence between teacher goals and other improvement goals was an influential factor in improved instruction (Garet et al., 2001; Parsad et al., 2001; Porter et al., 2000).

Aligning professional learning with the entire continuous improvement process is important because it builds on—rather than adds to—a continuous improvement process already in place in a district and its schools.

> **"** *Yet to achieve the promised benefits, technology-enhanced professional learning, like all forms of professional learning, must be driven by a purposeful plan that aligns with the improvement goals and expectations for performance and student learning outcomes, and it must support learning through all phases of acquisition, application, and analysis of results.*
>
> (Killion, 2013, p. 11)

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Typically, continuous improvement would have incorporated the analysis of data and the identification of critical needs in the first stage of the process to develop priority goals. Therefore, aligning professional learning with a priority goal will ground the professional learning strategy in student data.

As district and school leaders know, stage two of a sound improvement process is all about the plan. It usually begins with articulating the goals: specific, measurable, achievable, relevant, and time-bound goals. The goals are then associated with strategies, indicators of success, and the specific actions needed to implement the strategy.

It is in stage two and subsequent stages that the *Future Ready Schools: Empowering Educators Through Professional Learning* toolkit can strengthen and focus the improvement process. The Professional Learning Strategies Self-Assessment Tool asks the district leadership team to prioritize improvement goals and assess and refine professional learning strategies needed to accomplish a specific goal. As discussed, this is where the purposeful integration of online and connected with face-to-face professional learning takes place. The self-assessment tool also asks the user to consider the indicators of success of a strategy and begin to identify potential evidence of how successful implementation of a strategy will be observed or experienced. The *Online Professional Learning Quality Checklist* suggests possible ways to show evidence of a webinar, Twitter chat, online community of practice, or another learning experience through documentation and artifact collection, as a means of credentialing or determining quality for awarding professional learning credits.

> **❝** *Historically, districts and schools have been so loosely coupled that they have had little influence on what occurs in individual classrooms and consequently have had little influence on student achievement.*
>
> (Marzano, 2008, p. 39)

However, the *Evaluation Tool* in the *Future Ready Schools: Empowering Educators Through Professional Learning* toolkit supports district leaders in tying it all together: identifying, collecting, analyzing, and sharing evidence of the actual value that well-aligned professional learning strategies are creating for educators and students. It is recommended that this tool be reviewed early in the improvement process, ideally in stage two when considering the possible indicators of success for professional learning strategies. This will help district leaders do the following:
- Think in new and different ways about the types of value, indicators, metrics, and data sources— ways that will enable them to capture the value of the professional learning experience throughout a learning cycle
- Consider how best to apply the focused professional learning strategies across schools within the district and evaluate their effectiveness so that professional learning is coherent and results oriented

These are especially important for complex, interrelated, and well-integrated strategies.

The *Evaluation Tool* is based on the value creation framework (Wenger et al., 2011) used in the Connected Educators research and described in this brief. In addition to providing details about the five types of value, the *Evaluation Tool* describes three kinds of evidence–indicators, stories, and artifacts—that can document the value of professional learning. It also illustrates many ways that educators can collect, measure, analyze, and share evidence of the value of the professional learning, including the use of a digital portfolio.

> **"** *In schools where teachers examined the evidence of the impact of teaching effectiveness on student achievement and regarded their professional practices as the primary cause of achievement, the gains in student achievement were three times higher than in schools where the faculty and leaders attributed the causes to factors beyond their control.*
>
> (Reeves, 2007)

The *Evaluation Tool* will be instrumental in implementing and monitoring professional learning strategies, usually part of stage three of a continuous improvement process. The *Evaluation Tool* also will be fundamental in evaluating the improvement process (stage five) as it relates to the efficacy of professional learning in moving a district toward its goals. Used well and combined with traditional evaluation approaches, the *Evaluation Tool* should help district leaders and other educators do the following:

- Make evidence-based decisions about professional learning strategies and experiences: what is working, what is not working, and how to improve professional learning activities.
- Compare results and share effective practices: What difference has the investment in professional learning made? Why have certain strategies and practices proven effective?

Approach the Way Professional Learning Works Systemically

It is recommended that district leaders focus efforts first on professional learning aligned with the continuous improvement process. At the same time, it is imperative that leaders acknowledge professional learning as one component of a larger education system designed to ensure teaching effectiveness and student success. Other components of that system include recruitment and hiring, working conditions, induction, performance management, compensation, and incentives.

Systemic leadership looks at all parts and players in the system to determine that they are strategically aligned and not working at cross-purposes (Killion, 2011; Laine, 2011). For example, in a connected district, educators would be hired with the expectation that they further develop their knowledge and skills as connected educators and engage in collaborative face-to-face and online professional learning with colleagues. New hires would enter a workplace with working conditions that provide a positive and collaborative culture and with the technology platforms and instructional resources that support learning for the 21st century. Educators would participate in an induction program that builds their knowledge and skills in the school's and district's online communities of practice and social networks and aligns

with ongoing professional learning throughout their careers. Evidence-based online plus connected and blended professional learning would be directly responsive to the performance management process so that evaluations recognize inputs, such as teacher leadership in a community of practice or evidence of exceptional professional growth in the use of instructional practices learned from active participation in a global subject-area social network, and outputs that provide feedback and identify areas for improvement and additional professional learning that are differentiated for each teacher. At the same time, digital badges and e-portfolios would reflect professional growth and provide incentives linked to compensation, certification, and licensure.

Although this summary example represents a change effort focused on a system of professional learning within a broader teaching effectiveness system—a system within a system—and presumes policies, practices, resources, and management are needed to put it to use. Approaching the way professional learning works within a district systemically takes forward thinking, strategic decision making, and actions. Realistically, it must happen across time.

The initial *Professional Learning Readiness Self-Assessment Tool* in the *Future Ready Schools: Empowering Educators Through Professional Learning* toolkit sets the stage for systemic thinking about well-integrated professional learning with items that relate to working conditions, educator evaluation, and incentives. Items in other tools reinforce some of those systemic connections while supporting district leaders integrating virtual professional learning into their continuous improvement process and their formal support structure.[6]

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[6] Real-life examples, the perspectives of various stakeholders, underlying research, and practical checklists for guiding leadership team conversations can be found in *Improving Teacher Quality: A Guide for Education Leaders* (Laine, 2011) and support that developmental change process. *Generating Teaching Effectiveness: The Role of Job-Embedded Professional Learning in Evaluation* (Coggshall et al., 2012) shows how and why professional learning can be an integral part of the teacher evaluation process rather than simply a "result" of evaluation.

Setting a Trajectory and Taking Action

The *Future Ready Schools: Empowering Educators Through Professional Learning* toolkit provides leaders with a multistep decision-making process, practical tools, and numerous examples for setting positive change, moving assertively along paths of more collaboration, support, and global connections toward achievement of student learning and improvement goals. Design principles embedded in the toolkit guide and support district leaders' thinking and acting both systematically and systemically to fine-tune their professional learning by leveraging the power of technology through multifaceted integration. The process invites districts to complete five steps:

1. **Determine District Readiness.** Establish a leadership team and review and align district plans that include substantive professional learning. Use the *Professional Learning Readiness Self-Assessment Tool* to assess face-to-face and virtual professional learning capacity that exists in the district.

2. **Assess Current Professional Learning.** Based on district plans, describe a high-priority district improvement goal and identify current professional learning strategies that address the goal. Use the *Professional Learning Strategies Self-Assessment Tool* to rate current professional learning strategies on the degree to which they represent the characteristics of high-quality and evidence-based professional learning.

3. **Refine Professional Learning.** Consider district ratings and the examples presented in the *Examples of Effective Professional Learning Strategies and Their Use in Connected Districts* document and plan how to refine designated strategies or identify new strategies. Use the *Professional Learning Strategies Self-Assessment Tool* to assess refined professional learning strategies.

4. **Implement Professional Learning.** Use the *Online Professional Learning Quality Checklist* to evaluate possible online professional learning activities based on their content, characteristics, and format. Then, implement your revised professional learning plan.

5. **Measure Refined Professional Learning.** Use the Evaluation Tool to systematically plan, collect, and analyze evidence of professional learning and communicate the results.

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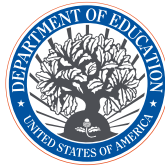
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