Shrinking budgets, looming standards, and a dizzying array of innovations are changing the professional learning landscape

TAPPING TECHNOLOGY'S POTENTIAL

By Joellen Killion

The breadth of the need for professional learning required to implement new content standards overwhelms most districts and states. Nearly all reports from teachers, district leaders, and state leaders include professional learning among the most frequently identified needs.

As the call for professional learning that incorporates on-going feedback and support increases and resources to address that need decline, more states, districts, schools, and individuals are turning to technology. Technology creates significant opportunities for more focused professional learning, especially when it is effectively integrated into a comprehensive system for professional learning; provides easy access to content that is relevant to individual, team, school, district, and state goals; and includes high-quality content, application of learning within the work setting, and constructive feedback and support over time to refine implementation of learning.

RESOURCES AND TOOLS FOR IMPLEMENTING COMMON CORE STATE STANDARDS

This article is excerpted from *Meet the Promise of Content Standards: Tapping Technology to Enhance Professional Learning.* This brief is just one of several resources created as part of Learning Forward's initiative Transforming Professional Learning to Prepare College- and Career-Ready Students: Implementing the Common Core.

The multidimensional initiative focuses on developing a comprehensive system of professional learning that spans the statehouse to the classroom. The project will reform policy and practice and apply innovative technology solutions to support and enhance professional learning.

With an immediate focus on implementing Common Core State Standards and new assessments, the initiative provides resources and tools to assist states, districts, and schools in providing effective professional learning for current and future education reforms. This work is supported by Sandler Foundation, MetLife Foundation, and the Bill & Melinda Gates Foundation.

Learn more at **www.learningforward.org/advancing/ implementingthecommoncore.cfm.**

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While technology can enhance professional learning, how educators use it will determine the degree to which it can influence educator practice and results for students. As individuals, schools, districts, and states strive to meet the demand for professional learning generated by Common Core standards and other emerging initiatives in education, effective use of technology requires careful consideration and planning.

HOW TECHNOLOGY ENHANCES PROFESSIONAL LEARNING

Technology is a purposeful component of a comprehensive system that includes a vision, goals, definition, standards, policies, and practices for coherent and continuous learning throughout educators' careers to support achievement of individual, team, school, district, state, and national education improvement goals. Technology enhances professional learning through a range of critical attributes:

Personalization. Technology supports professional learning that is personalized to meet each educator's unique learning goals and preferences by allowing educators to select and adapt what they learn, how they learn, and when they learn. Technology allows rapid responses to performance data tied to a specific teacher and classroom. These data inform what immediate professional development needs can improve student learning. For many learners who are frustrated with one-size-fits-all professional learning that offers little differentiation, technology allows both professional learning providers and participants to design what works best for learners.

Collaboration. According to many learning theorists, learning occurs when learners connect with ideas and other learners. For decades, learning researchers have promoted the value of interaction as a part of the learning process. Early uses of technology to enhance professional learning relied on static content and information transfer. Technology promotes collaboration among individuals who have common interests and needs through multiple forms of dynamic interaction. Through this process, learners can co-construct knowledge, share experiences, reflect on practice, seek feedback, and contribute to the learning of others.

> **See the tool on pp. 15-18 for a list of criteria to consider when making decisions about the integration of technology-enhanced learning products and services for professional learning.**

Access. Increasingly, people expect to be able to learn wherever and whenever they want, and technology makes this possible (Johnson, Adams, & Cummins, 2012). The degree to which educators can engage in high-quality professional learning influences its effects. Access to such learning is fundamentally an equity issue. When some have access to effective professional learning and others do not, growth and development opportunities are uneven, and that in turn may affect educators' effectiveness and efficacy as well as student achievement. Education budget challenges have reduced professional learning resources, including time and funding for participation in

face-to-face professional learning such as courses, conferences, or workshops that often require registration fees and travel. At the same time, online and hybrid forms of learning reduce costs while maintaining and even increasing access to professional learning. Technology has increased learning opportunities for educators in remote areas where travel is challenging because of distance and weather conditions, and even for educators for whom driving across town to the district office is too time-consuming.

Efficiency. Large-scale change, such as implementation of college- and career-ready standards, redesigned student assessments, and educator effectiveness systems, places tremendous pressure on educators to redesign their routines and processes. Technology can alleviate pressure some educators feel when facing significant changes and help to facilitate them. Technology can increase the efficiency of routine tasks, access to resources at the workplace, and serve as a vehicle for ongoing feedback.

Learning designs. The design of learning influences its outcomes, particularly when the design incorporates core elements of effective learning such as practice, feedback, and sustained support. Just as teachers are creating more challenge-based and active learning for students, educator professional learning should create deeper learning for educators inside and outside school, connecting educators with the global community, and promoting successful implementation of new initiatives designed to increase student success.

Technology-based learning, if designed well, supports added practice, feedback, and support to deepen learning. In addition to assisting educators to use technology to facilitate routine work, their professional learning must model and engage educators in similar learning experiences using technologies students are using, if appropriate. These technologies include mobile devices, tablet computing, game-based learning, personal learning environments, augmented reality, and natural user interfaces (Johnson, Adams, & Cummins, 2012). Where early versions of learning via technology relied heavily on knowledge transfer using online text, newer advances open the door to augmented reality and natural user interfaces that engage educators in simulated environments to practice and refine skills, such as problem solving and contextual decision making.

A HOLISTIC SYSTEM

History suggests that implementation of new initiatives requires major overhaul of education's approach to change. "All too often, implementation of major change efforts in education becomes a hodgepodge of standards over here, assessments over there, and teacher appraisal and incentives in still another box," suggest Tracy Benson et al. (2012). Districts, states, even whole countries, often have great front-end fanfare but, without systemic leadership capacities, a chronic inability to put the pieces together in implementation" (p. 5). A systems approach ensures coherence, coordination, and consistency for optimal results.

Professional learning is one component of a broad, holistic education system designed for student success. Included in this broad system are multiple, interdependent, comprehensive systems working coherently toward a common goal. Component systems such as curriculum and assessment, induction and mentoring, educator effectiveness, and professional learning work together to ensure that students have consistently high-quality teaching and learning each day. A technology-enhanced professional learning system, then, nestles inside a comprehensive professional learning system nestled inside a holistic education system. Technology contributes to the success of the broader system and its individual component systems.

Without thoughtful integration of technology, the opportunities it provides may be lost if the technology is misaligned to the goals for student and educator learning, if the selection process does not include probable users and has limited criteria, and if inadequate support for full use of the technology to implement the learning are unavailable.

STANDARDS-BASED LEARNING

To be effective, technology-enhanced professional learning, just like face-to-face professional learning, meets the Standards for Professional Learning.

The standards synthesize nearly three decades of research on professional learning and identify the attributes of professional learning that improves educator practice and student achievement. Using Standards for Professional Learning as a guide, the table on pp. 15-18 provides criteria for making decisions about the integration of technology-enhanced learning products and services for professional learning.

COMMON LIMITATIONS

With its many strengths and benefits, there are limitations to technology-enhanced professional learning. These limitations can be mitigated with careful planning, ongoing support, and constant monitoring, analysis, and evaluation.

Misuse of technology. Misuses of technology can occur in multiple ways, such as using technology to substitute for all forms of professional learning; adding technology as a resource for professional learning without embedding it into a comprehensive plan for professional learning driven by a vision, definition, standards for all professional learning, and ongoing evaluation; and providing technology with no support for applying learning into practice or constructive feedback to refine practice over time. To avoid these and other misuses, a comprehensive plan for professional learning is a necessary first step

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to guide the thoughtful selection, planning, implementation, and evaluation of technology-enhanced and all other forms of professional learning.

Disconnected from other support systems. Without a connection to other information and data systems, technology-enhanced professional learning has limited potential. When integrated with student and educator data systems, technology-enhanced professional learning connects educators with information they need to assess their professional learning needs and provides them the data to monitor and assess progress toward their goals.

Inadequate support for learners. Any new tool or resource typically requires an explanation of how it works and can benefit users. Technology-enhanced professional learning requires support for new users to build basic understanding and to promote further experimentation. For those more comfortable with technology, online help may be sufficient. For those less comfortable, online and onsite support may be needed. For any professional learning to add value, educators must receive sustained, ongoing support.

Limited implementation planning. Too frequently, a school or district will choose technology resources because they promise results. To get those results, however, the school or district must develop, implement, monitor, and evaluate technology-enhanced professional learning just as it would any other professional learning. Access alone will not ensure results for educators and students. To achieve full benefits of any professional learning, decision makers need to establish clear expectations for use, provide support, monitor use and effectiveness, identify and address barriers, and offer educators opportunities to learn how to use the resources to strengthen practice and student results.

PLANNING FOR SUCCESS

Those who lead, plan, and implement professional learning, along with those who participate in it, can increase its benefits by becoming savvy, critical consumers and engaging in thoughtful selection, planning, implementation, and evaluation of available technology products and services. The process begins with assessing student and educator learning needs based on the expectations of Common Core standards, establishing explicit student and educator learning goals, and selecting the most appropriate learning design to achieve the educator learn-

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ing goals. Successful implementation also takes into account these considerations:

Integrate technology into a comprehensive professional learning system.

Implementing technology as a part of a comprehensive professional learning system requires thoughtful decision making and deliberate actions at all stages — selection, implementation, and evaluation.

Use a careful selection process.

Understanding the new product's intended purpose and developing clear criteria for selection that integrate probable users' perspectives are important first steps of the selection process.

Consider joint purchasing agreements.

Technology is a way to address increased demands with limited budgets; however, most initial investments in technology-enhanced professional learning products and services are significant. Tapping the potential of collaborative purchasing agreements across districts, regions, within the state, or even across states can add value to the investment both for the provider and the purchasers.

Provide ongoing support for use and application of learning.

As with all professional learning, technology-enhanced professional learning realizes its potential when it improves educator practice and increases results for students. Results require application of learning, and application of learning requires job-embedded assistance and constructive feedback to refine use.

As individuals, schools, districts, and states seek new ways to expand professional learning, they will turn more frequently to the many innovative, technology-enhanced professional learning products and services available from for-profit, nonprofit, associations, universities and colleges, regional education agencies, districts, and state education departments. Informed decision making and sufficient, sustained support are key to implementing and benefiting from these products and services.

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CRITERIA FOR SELECTING TECHNOLOGY-ENHANCED PROFESSIONAL LEARNING

To be effective, technology-enhanced professional learning, just like face-to-face professional learning, meets the Standards for Professional Learning. The standards synthesize nearly three decades of research on professional learning and identify the attributes of professional learning that improves educator practice and student achievement. Using Standards for Professional Learning as a guide, the following table provides criteria to consider when making decisions about the integration of technology-enhanced learning products and services for professional learning.

(Note: The type of product or service and its intended outcomes may require that some indicators have greater priority than others. Thoughtful examination of all indicators prior to review will assist reviewers to prioritize the indicators for their identified purposes and intended outcomes.)

STANDARDS FOR PROFESSIONAL LEARNING	CORE ELEMENTS	TO WHAT DEGREE DOES THE TECHNOLOGY-ENHANCED PRODUCT OR SERVICE:
LEARNING COMMUNITIES Professional learning that increases educator effectiveness and results for all students occurs within learning communities committed to continuous improvement, collective responsibility, and goal alignment.	Engage in continuous improvement.	• Integrate a cycle of continuous improvement for sustained, ongoing professional learning. • Analyze educator, student, and school data to identify student-learning needs. • Define educator professional learning goals based on student learning needs. • Select and implement evidence-based designs for professional learning to achieve professional learning goals. • Provide job-embedded coaching and other forms of assistance to support transfer of learning. • Assess and evaluate the effectiveness of professional learning. • Inform ongoing improvement in teaching, leadership, and learning. • Tap external assistance when necessary. • Engage users.
	Develop collective responsibility.	• Facilitate collaboration, resource sharing, networking, and knowledge co-construction for shared learning among large and small teams of educators who share common goals for student success; job-related performance; school, district, and state improvement efforts, etc. • Promote a culture of collective responsibility for student and peer success. • Tap internal expertise of peers. • Promote collaborative problem solving, inquiry, decision making, and product development to support effective professional practice.
	Create alignment and accountability.	• Support achievement of individual, team, school, district, or state goals for educator effectiveness and college- and career-readiness for students. • Build in accountability for professional learning and application of learning to improve practice and student results.

STANDARDS FOR PROFESSIONAL LEARNING	CORE ELEMENTS	TO WHAT DEGREE DOES THE TECHNOLOGY-ENHANCED PRODUCT OR SERVICE:
LEADERSHIP Professional learning that increases educator effectiveness and results for all students requires skillful leaders who develop capacity, advocate, and create support systems for professional learning.	Develop capacity for leading.	• Develop leadership capacity of educators, particularly those with formal and informal leadership responsibilities and those who aspire to become leaders. • Promote educator communication with peers and supervisors. • Provide tools for leaders to support effective use of technology for professional learning.
	Advocate for professional learning.	• Link professional learning to state, district, school, and individual improvement efforts. • Generate information to inform communication with policymakers, decision makers, educators, and public about the role of professional learning in supporting implementation of Common Core standards and college- and career-readiness for students.
	Create support systems and structures.	• Provide infrastructure that facilitates effective professional learning. • Incorporate data and information management for professional learning. • Provide planning, analysis, reflection, and evaluation tools for professional learning. • Align with established goals, plans, and overall professional learning system.
RESOURCES Professional learning that increases educator effectiveness and results for all students requires prioritizing, monitoring, and coordinating resources for educator learning.	Prioritize human, fiscal, technology, material, and time resources.	• Promote thoughtful use of all resources for professional learning to achieve individual, team, school, district, and state improvement goals. • Reduce dependence on other resources (staff, time, materials, or funding) or increase the efficiency and effectiveness of other resources for professional learning without diminishing effectiveness of learning and results for educators and students. • Increase effectiveness and efficiency of learning process.
	Monitor resources.	• Collect data about effectiveness and efficiency of professional learning and results. • Generate analyses of resource use to inform revisions, planning, and evaluation of professional learning.
	Coordinate resources.	• Develop cross-program, school, district, and state integration of resources for professional learning to maximize benefits, increase efficiency and return on investment, and expand use. • Expand resources available for professional learning. • Provide single point of entry for all resources, information, and data for professional learning.

STANDARDS FOR PROFESSIONAL LEARNING	CORE ELEMENTS	TO WHAT DEGREE DOES THE TECHNOLOGY-ENHANCED PRODUCT OR SERVICE:
DATA Professional learning that increases educator effectiveness and results for all students uses a variety of sources and types of student, educator, and system data to plan, assess, and evaluate professional learning.	Analyze student, educator, and system data.	• Collect data from multiple sources. • Provide analysis of data collected to inform decisions about learning needs, goals, content, and processes. • Create learner profile and goals for individual, team, school, district, and state professional learning.
	Assess progress.	• Incorporate identification of benchmarks and indicators for progress toward professional learning goals. • Use data to measure progress toward professional learning goals. • Provide recommendations for interim adjustments to achieve professional learning goals.
	Evaluate professional learning.	• Collect data to evaluate the effectiveness, results, and efficiency of professional learning. • Provide analyses to inform decisions about future planning for professional learning. • Support analysis of data for individual, team, school, district, and state evaluation of professional learning.
LEARNING DESIGNS Professional learning that increases educator effectiveness and results for all students integrates theories, research, and models of human learning to achieve its intended outcomes.	Apply learning theories, research, and models.	• Use a research-based approach or theoretical framework for learning process. • Integrate principles of human learning. • Demonstrate respect for professional educators.
	Select learning designs.	• Integrate multiple learning designs to address learner preferences and needs. • Integrate learning processes that parallel expected outcomes for educators. • Provide models of exemplary practice. • Maximize the use of technology to increase effectiveness, efficiency, and results of professional learning. • Differentiate to accommodate learner preferences, backgrounds, experiences, environment, technology skills, and identified needs. • Support options for learner choice in content and process. • Build flexibility in learning pathways and processes. • Meet ADA or web-content accessibility standards. • Support ease of use and navigation. • Provide evidence of success in other schools, districts, states, and education agencies.
	Promote active engagement.	• Engage learners in constructing knowledge. • Require demonstration of learning through product development, application to practice, and evidence of results. • Integrate ongoing reflection, analysis, critique, evaluation, and synthesis of information, ideas, principles, concepts, practices, etc. • Create multiple opportunities to practice application of learning in different settings.

STANDARDS FOR PROFESSIONAL LEARNING	CORE ELEMENTS	TO WHAT DEGREE DOES THE TECHNOLOGY-ENHANCED PRODUCT OR SERVICE:
IMPLEMENTATION Professional learning that increases educator effectiveness and results for all students applies research on change and sustains support for implementation of professional learning for long-term change.	Apply change research.	• Use research on change to promote implementation of learning. • Support professional learning through all phases of the learning process, including acquisition, application, analysis of results, and continuous refinement to achieve mastery.
	Sustain implementation.	• Promote mastery and refined use of learning. • Define explicit expectation for learning and application of learning. • Provide exemplars of application of learning as models. • Provide access to personalized support for implementation. • Provide support over multiple years to achieve full and accurate implementation of new learning.
	Provide constructive feedback.	• Provide continuous formative feedback based on explicit criteria. • Provide feedback from peers, supervisors, and experts. • Incorporate a system to request feedback on specific processes, products, or other aspects of the learning process. • Integrate self-analysis and reflection as a part of the learning process. • Link feedback with next-step actions.
OUTCOMES Professional learning that increases educator effectiveness and results for all students aligns its outcomes with educator performance and student curriculum standards.	Meet performance standards.	• Align educator learning goals and content with performance expectations and standards. • Align learning goals and content with identified learner needs. • Promote high level of educator performance. • Deepen educator content knowledge. • Expand instructional practices. • Integrate pedagogical content knowledge.
	Address learning outcomes.	• Align educator learning goals and content with student learning outcomes as defined in Common Core or college- and career-ready standards. • Align educator learning goals and content with identified student learning needs. • Promote high level of educator performance to achieve student learning goals and standards. • Expand educator expertise to meet the academic, cultural, language, family, and social needs of all students. • Develop strategies to guarantee equity in learning for all students.
	Build coherence.	• Build on previous experience and background of educators. • Link initiatives, resources, and talents across multiple initiatives, programs, and improvement efforts. • Promote synthesis of learning across multiple learning experiences.