



Inventory and Plan for Teaching and Learning with Technology: Supporting the Performance of Utah's Educators

Prepared for the Utah Education Network

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The master plan for Utah makes professional learning for educators a priority. UEN has combined efforts with a number of stakeholders across Utah, and experts in the field of digital technologies, to create a statewide technology proposal. Professional learning for educators is a key component of this proposal. This emphasis is justified by human performance research and studies of effective professional learning for K-12 organizations. Further, we acknowledge that access to technology alone seldom results in lasting organizational change. Rather, it requires *ongoing and effective* professional learning supports for educators.

As the initial step in addressing the teaching and learning with technology needs of Utah's educators, UEN contracted with Dr. James Marshall, San Diego State University, to accomplish two things: (1) conduct an inventory of current technology-related professional development offerings, and anticipated needs, with school districts across the state; and (2) conceptualize a professional learning approach that would support the ongoing development and performance of the state's educators.

This *Inventory and Plan for Teaching and Learning with Technology* reflects the excellent professional learning and technology implementations occurring throughout the state of Utah. This includes UEN's significant and successful presence as a provider of training and performance support/reference tools. As a result, it leverages the best practices currently in use, combined with research-based strategies, to bring about a systemic paradigm shift. It is designed to provide the external resources necessary to integrate technology into the classroom while advancing the skills, knowledge and performance of Utah's K-12 educators.

The report is organized into the following sections:

1. Background
2. Guiding Principles for Professional Learning
3. Priorities for Professional Learning: An Inventory of State Professional Learning Offerings
4. Facilitating Professional Learning: Solution System Overview
 - a. Key Component 1: Training
 - b. Key Component 2: Professional Learning Communities
 - c. Key Component 3: Ready References
 - d. Key Component 4: Best Practice Repository
 - e. Key Component 5: Access to Experts
5. Bringing the Plan Together

I. Background

Teaching and learning in the 21st century are inexorably tied to technology. Barr and Sykora (2015) describe the challenge that this dynamic relationship poses to education:

Technological changes are accelerating at a breathtaking pace and are challenging the conventional approach to primary and secondary education. As leaders and educators explore the opportunities afforded by the rapid changes, they must also consider how these innovations impact the process of learning and teaching (p. 1).

It is the responsibility of every educational organization to ensure that the use of technology increases student learning and improves teacher practice. Professional learning offers an effective solution to systemically and systematically achieve this goal.

Professional learning, historically termed *professional development*, is the means by which teachers acquire new *skills and knowledge* in order to effectively implement and integrate new practices into their classrooms and instruction. Through technology-targeted professional learning, the *value* of using technology is established and the teacher's *confidence* in using technology for learning is instilled. Without purposeful and systematic attention to these three domains, consistent and continuing performance is unlikely to occur (Rossett, 2009; Hale, 2006; Gilbert, 1978).

Professional learning has long been observed as something that occurs outside of the classroom and apart from typical work duties. Examples include "in service training," in which, typically, an outsider visits the school, or a short, focused training session at the district office. Unfortunately, such sessions have typically produced little change or translated to sustained implementation of trained skills in the classroom (The New Teacher Project, 2015). Ingvarson (2005) says that the disconnect is due to policy makers' naïve notions about the ease of educational change, and argues that they make policy without "understanding that the kinds of change that really matter in education are not structural changes but those that build teacher capacity and professional culture" (p. 63).

It's important to recognize the realities facing educators who attempt to provide effective, technology-rich learning experiences in the classroom:

- Hard technologies (devices) are evolving, and will continue to advance in terms of their sophistication, functionality and penetration in schools.
- The body of knowledge about the successful use of technology is constantly shifting and growing.
- The needs of students are constantly changing throughout the year, and from year-to-year.
- Over time, the instructional focus of a school or district is likely to change as a result of state and federal influences.

With these realities in mind, it becomes clear that traditional methods of professional learning, including one-shot training sessions, fall short of providing educators with the skills, knowledge and tools necessary to thrive in dynamic, technology-rich learning environments. Available evidence suggests that technology alone does not create educational improvement; educational improvement comes about through coherent instruction and assessment that supports high-quality student learning (Goldman, Lawless, Pellegrino, & Plants, 2005-2006; Newman, Smith, Allensworth, & Bryk, 2001).

To address the needs of 21st century educators, we define **professional learning** as a systematically defined set or complement of strategies and tools that, when used together, bring about systemic performance improvements specific to the ability of teachers to understand, implement and utilize technology for purposes of teaching and learning. Lawless and Pellegrino (2002) state that “technology can make it quicker or easier to teach the same things in routine ways, or it can make it possible to adopt new and arguably better approaches to instruction and/or change the content or context of learning. Decisions about when to use technology, what technology to use, and for what purposes cannot be made in isolation of theories and research on learning, instruction, and assessment” (p. 581). Our approach to professional learning deliberately avoids isolated training “events” (i.e., “one and done” stand-alone sessions), and instead emphasizes a multi-strategy set of solutions (solution system) that responds to the realities of the ongoing development of teachers and their successful use of learning technologies.

The remainder of this document presents data from every school district in the state to inventory current practices, and needs into the future. Predicated on these inventory results, we present a conceptual plan for professional learning that responds to educator needs across the state.

II. Guiding Principles for Professional Learning

The No Child Left Behind (NCLB) reauthorization of the Elementary and Secondary Education Act placed professional learning in the spotlight. Since the act was signed into law on January 8, 2002, schools, districts and states have been prompted emphasize high quality professional learning. In fact, NCLB required schools not meeting adequate yearly progress targets to devote at least 10% of federal funds provided under Title I to teacher professional learning. The NCLB has recently been reauthorized (renamed Every Student Succeeds Act, or ESSA), and the emphasis on professional learning over the past 14 years has become a proving ground for assessing the effectiveness of support provided to teachers.

These assessments have resulted in a set of principles for evaluating the effectiveness of professional learning. While these principles apply to classroom teachers, they also speak to educational leaders, school administrators and district-level administrators who have a critical role to play in order for the development efforts to be successful.

It is unfortunate, however, that professional learning specific to using technology in teaching and learning has received less attention. Lawless and Pellegrino (2007) observe, “The paucity of empirical research examining the area of technology professional learning for teachers is astonishing” (p. 584). Thus, in this plan our focus is largely on research-derived best practices for professional learning in general, which we have applied specifically to effective use of technology for teaching and learning. Exceptions, specific to technology-specific guidance, are noted where present.

Guiding Principles: Effective Professional Learning for Teachers

The following principles provide overarching guidance for the sustained professional learning to be provided to teachers as part of this plan.

1. Professional learning, like any type of learning, is an ongoing expectation; time should be dedicated to regularly support the professional learning of educators.
2. Technology can and should be leveraged to support professional learning and professional learning communities.
3. Professional learning programs should support and align with Utah Educator Effectiveness Standards, and lead to Utah State Office of Education and/or higher education licensure and professional credits.
4. Professional learning solutions should build on successful models already deployed including Utah Education Network (UEN) Training, Train the Trainer, Local Education Authority (LEA) School Technology Specialists, eMINTS, and other proven programs.
5. Professional learning should address teachers’ (a) content, (b) pedagogical, and (c) technology knowledge, and the interaction among these three elements, as defined by the TPACK Model for Technology Integration (Mishra & Koehler, 2006).
6. Professional learning should enable teachers to continuously increase the depth of technology integration in their classrooms, as defined by the SAMR Model (Puentedura, 2012), moving from substitution of technology for existing assignments, to redefinition of teaching and learning involving strategies previously impossible, without the use of technology.

7. Professional learning efforts specific to technologies for teaching and learning should align with the International Society for Technology in Education (ISTE) standards for teachers (ISTE Standards•T, 2008), and help teachers:
 - Facilitate and inspire student learning and creativity
 - Design and develop digital age learning experiences and assessments
 - Model digital age work and learning

Guiding Principles: Effective Professional Learning for Administrators

Success for teachers is predicated on the attention and support of those who lead the organizations in which they work. The following principles are critical towards achieving the envisioned outcomes for teaching and learning with technology.

1. School principals are the instructional leader in the school. This plan recommends ongoing professional learning for building district and region-level administrators, including leadership teams. A separate leadership-focused plan has been developed in parallel with this teacher-focused effort.
2. Technology professional learning should align to the ISTE standards for administrators (ISTE Standards•A, 2008), including:
 - Visionary Leadership
 - Digital age learning culture
 - Excellence in professional practice

State Responsibilities

To maximize efficiencies and ensure equal access, many professional learning activities should be coordinated at the state level by both UEN and the Utah State Office of Education (USOE). Currently programs include train-the-trainer programs, administration of the Educational Technology Endorsement Program (ETEP) and other endorsements, online courses and workshops, conferences, and social media communities.

Other state-level responsibilities include the following:

- Conduct a statewide inventory of the integration of technology in professional learning practices.
- Create an inventory of published literature and existing survey responses to identify and justify best practices in professional learning for digital learning environments.
- Develop an integrated professional learning plan in support of the statewide technology initiative. This plan may include face-to-face learning, distance-learning, synchronous and asynchronous strategies, and badges and micro credentialing—and balance traditional training with just-in-time learning, performance support tools for educators, collaborative learning opportunities, best practice capture and dissemination of practices, and train-the-trainer approaches.
- Produce a professional learning plan featuring embedded measures for quality monitoring and continuous improvement, and standards upon which professional learning can be evaluated.
- Fund school technology specialists, technology trainers, and other personnel whose primary responsibility is to support effective technology integration for teachers.
- Support prior investments in technology training resources including Canvas, Teaching Channel, and regional trainers. These should continue to be leveraged for ongoing professional learning.

- Establish criteria for effective professional learning to help LEA's gauge their investments in professional learning services provided by third-party vendors.
- Design and issue license endorsements for programs that incorporate best practices with educational technology integration.
- Address the issue of *time* within each district. In its paper, "Finding time for professional learning," the National Staff Development Council (2008) proposed that districts look at how their culture perceives the value of time, and then find more time by banking time, buying time, using common time, freeing teachers from classroom time, adding professional days, and using time more effectively" (p. 57-58).

LEA Responsibilities

Ongoing development of a district or school's faculty and administrators is an important LEA responsibility. LEAs must be adept at identifying areas of need, and fostering professional learning communities and a culture of support for practicing educators. Local school board members should also be supported in their shift toward the lasting organizational change outlined in this plan. Other LEA responsibilities include the following:

- Create technology-rich classrooms and schools.
- Help members of the school community understand how technology is being employed in the school and supporting parents with technology access through orientations, training, and involvement.
- Use the ISTE Standards, Utah Teacher Effectiveness Standards, and Professional Learning criteria to locate good professional learning opportunities for teachers.
- Host workshops, learning communities, team meetings, and other ongoing opportunities for purpose-built professional learning activities.

III. Priorities for Professional Learning: An Inventory of State Professional Learning Offerings

As part of the development of this Professional Learning Plan, a research effort was initiated to document the current professional development¹ offerings across the state of Utah, by district. The data collection effort benefitted from the participation of every district across the state.

This section presents key findings from the inventory of professional development offerings and assessment of district needs in key areas of teaching and learning with technology. Thus, the inventory can be used to establish priorities to address through professional learning—through the approach presented in Section III of this plan.

Methodology

A professional development inventory instrument was created through collaboration between UEN and Dr. James Marshall (San Diego State University). The instrument presented key topics to district personnel in an effort to assess the availability of professional development in each district, as well as the unmet need for professional development and the current modes of delivery. Ratings were recorded for eight key topic areas derived from a review of current literature and aligned to ISTE standards. The eight topic areas are defined in the Table 1.

Table 1: Professional Development Topics of Inquiry

| Topic | Examples |
|--|--|
| 1. Technology How To's | Operating computers, tablets, iPads, mobile devices |
| 2. Using Digital Creativity Tools to Inspire and Innovate | Creating games, multimedia, video, maker spaces |
| 3. Using Digital Productivity Tools to Prepare Students for College and Career | LMS's, Google tools, social media, Project Based Learning (PBL) via technology |
| 4. Developing Digital Learning Materials and Assessments | Open source materials, authentic assessments, web quests, .edu and .org sites |
| 5. Promoting Digital Citizenship | Personal learning networks, Internet safety |
| 6. Digital Classroom Management Models | Blended learning, flipped classroom, "bring your own device" (BYOD), 1:1 computing |
| 7. Using Digital Collaboration and Communication Tools | Google Drive, social media |
| 8. Conducting/Participating in Digital Professional Development | Online conferences, webinars, listservs, blogs, online classes |

¹ The term *professional development* was used for purposes of the inventory for purposes of communication with administrators who typically have retained use this term when referring to *professional learning*.

Current Professional Development Offerings

The initial question asked district respondents to indicate whether, for each of the eight topics, his or her district was currently providing professional development. Responses were rated on a four-point scale that ranged from “We do not offer PD on this topic” to “Teachers receive a significant amount of PD on this topic.” The following table presents the distribution of results. Shaded cells indicate the greatest percentage of responses for each topic.

Table 2: Current Amount PD Offered, by Topic

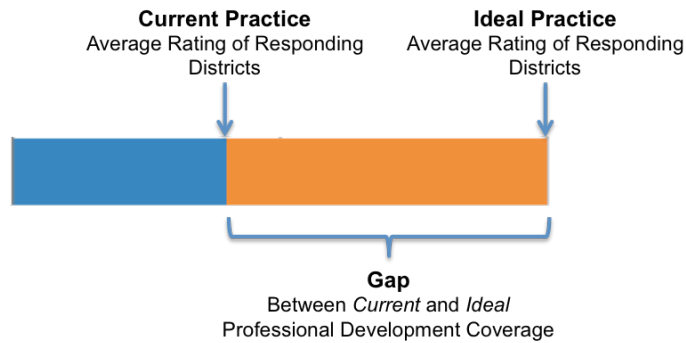
| Topic | Percentage of Districts Selecting | | | |
|--|-----------------------------------|--------------|--------------|----------------|
| | No PD | Limited PD | Moderate PD | Significant PD |
| 1. Technology How To's | 6.8% | 47.7% | 38.6% | 6.8% |
| 2. Using Digital Creativity Tools to Inspire and Innovate | 43.2% | 52.3% | 4.5% | — |
| 3. Using Digital Productivity Tools to Prepare Students for College and Career | 4.5% | 50.0% | 40.9% | 4.5% |
| 4. Developing Digital Learning Materials and Assessments | 18.2% | 56.8% | 20.5% | 4.5% |
| 5. Promoting Digital Citizenship | 2.3% | 68.2% | 25.0% | 4.5% |
| 6. Digital Classroom Management Models | 18.2% | 59.1% | 18.2% | 4.5% |
| 7. Using Digital Collaboration and Communication Tools | 11.4% | 36.4% | 38.6% | 13.6% |
| 8. Conducting/Participating in Digital Professional Development | 32.6% | 53.5% | 11.6% | 2.3% |

While the majority of districts offer at least some professional development for each of the eight topics, the majority of respondents indicated that they offer limited amounts of professional development for all but one question. Half of the responding districts offer moderate or significant amounts of professional development solely in the area of “Using Digital Collaboration and Communication Tools.”

Gap Analysis: Current vs. Ideal Professional Development Offerings

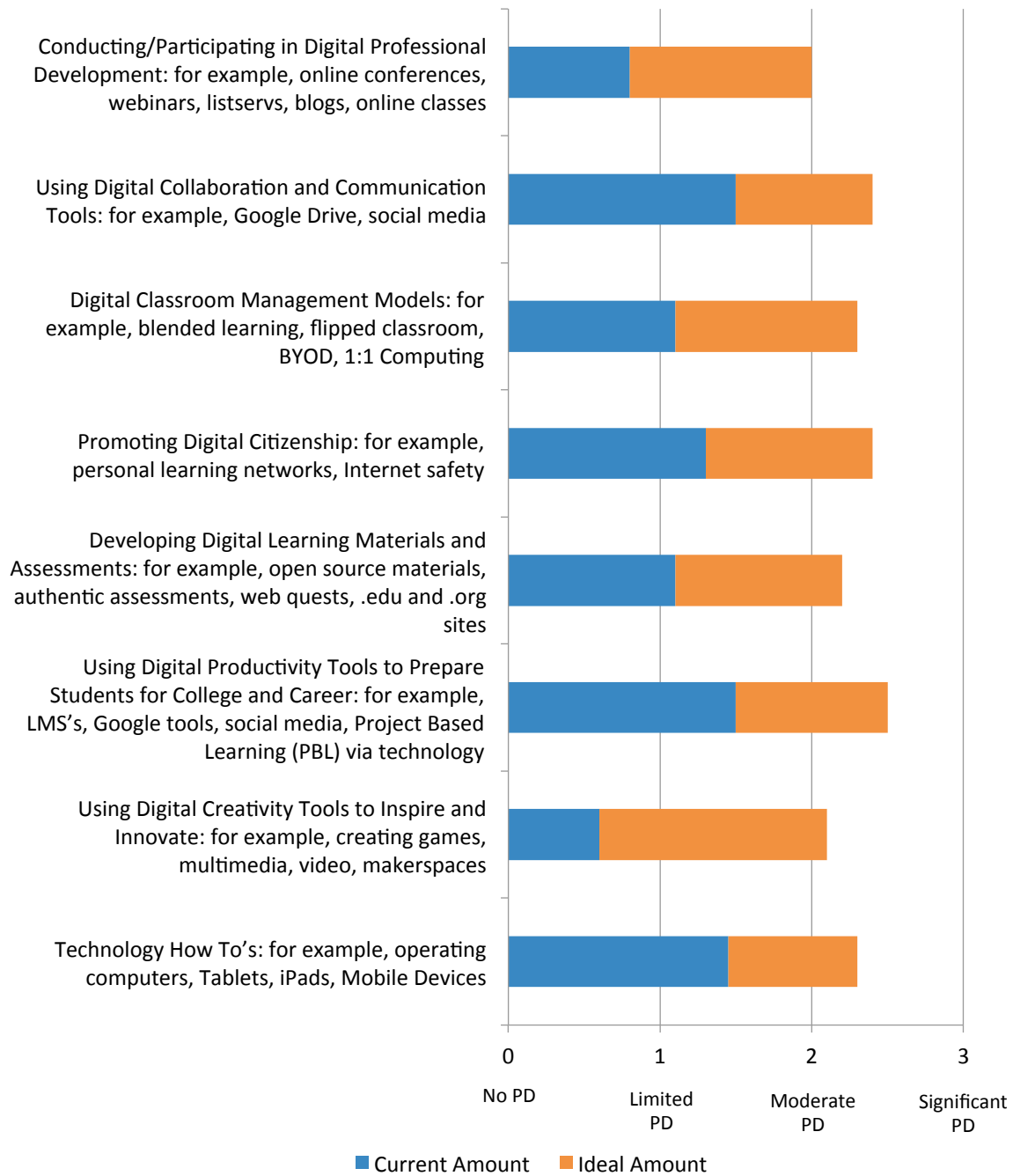
Respondents were also asked to indicate the “ideal” amount of professional development for each topic. A gap analysis was then performed using the current and ideal ratings. The gap analysis figure relies on mean (or average) responses for all questions. To calculate a mean, each point on the four-point scale was assigned a value (0=No PD, 1=Limited PD, 2=Moderate PD, and 3=Significant PD).

Interpreting the Figure:



The upper end of the blue shaded bar indicates the current amount, on average, of professional development offered for each given topic based on the previously described four-point scale; the upper end of the orange bar indicates the ideal amount, on average, of professional development sought by districts. Thus, the orange shaded area, in total, indicates the size of the gap between current and ideal professional development coverage. Wider bars indicate greater gaps. On average, districts' current professional development coverage fell short when measured against their indicated ideal for all topics.

Figure 1: Gap Analysis—Current and Ideal Amounts of Professional Development



Current Professional Development Delivery Modes

The inventory explored how professional development is currently being delivered to teachers in responding districts. The following table presents the percentage of professional development being delivered via face-to-face training, webinars, self-paced training, online tutorials (just-in-time learning), and online text and visual-based references. Shaded cells indicate the greatest percentage of responses for each topic.

Table 3: Professional Development Delivery Modes, by Topic

| Topic | Face-to-Face one day or less | Face-to-Face more than one day | Webinar Training synchronous, real-time online instruction | Self-paced Training asynchronous online instruction | Short “how-to” online videos used at time of need | Online text/visual-based references used at time of need web pages, PDFs |
|--|---------------------------------|-----------------------------------|---|--|---|---|
| Percentage of Districts Delivering Professional Development via Mode | | | | | | |
| 1. Technology How To's | 84.1% | 27.3% | 9.1% | 18.2% | 38.6% | 34.1% |
| 2. Using Digital Creativity Tools to Inspire and Innovate | 50.0% | 18.2% | 4.5% | 13.6% | 25.0% | 29.5% |
| 3. Using Digital Productivity Tools to Prepare Students for College and Career | 72.7% | 38.6% | 20.5% | 29.5% | 45.5% | 36.4% |
| 4. Developing Digital Learning Materials and Assessments | 52.3% | 22.7% | 13.6% | 18.2% | 36.4% | 34.1% |
| 5. Promoting Digital Citizenship | 81.8% | 20.5% | 11.4% | 20.5% | 15.9% | 34.1% |
| 6. Digital Classroom Management Models | 59.1% | 20.5% | 13.6% | 20.5% | 31.8% | 36.4% |
| 7. Using Digital Collaboration and Communication Tools | 70.5% | 38.6% | 15.9% | 34.1% | 38.6% | 40.9% |
| 8. Conducting/ Participating in Digital Professional Development | 34.1% | 15.9% | 27.3% | 15.9% | 22.7% | 14.1% |

For all but one topic, 50% or more of districts are delivering professional development via face-to-face training; for half of the topics, 70% or greater of districts rely on face-to-face training. Support methods that rely on “time of need” access currently receive far less use across the eight categories.

Professional Development Opportunities for UEN

A final inventory query asked district respondents to indicate their need for professional development support from UEN for each of the eight topics. Respondents accomplished this by selecting one of five possible options, as indicated in the following table. Ultimately, these responses provided the opportunity to quantify met and unmet needs for professional development support.

The following table indicates the percentage of respondents selecting each of the five possible options. In addition, the final column tabulates the percentage of respondents indicating a need for additional or new support (i.e., no current support provided) from UEN. Bold figures indicate the greatest percentage of responses for each topic across the five response options.

Table 4: District Professional Development Support from UEN

| Topic | No Change in UEN Support | | Requests for Additional, or New, UEN Support | | | Total Percentage Requesting Additional or New UEN Support |
|--|------------------------------|--|--|---|----------------------------------|---|
| | Do not need support from UEN | Currently receive support from UEN, and it is sufficient | Currently receive support from UEN, but could use more | Do not receive support from UEN, but could use: | | |
| | | | | some support if available | significant support if available | |
| 1. Technology How To's | 41.9% | 11.6% | 16.3% | 25.6% | 4.7% | 46.6% |
| 2. Using Digital Creativity Tools to Inspire and Innovate | 15.9% | 11.4% | 25.0% | 31.8% | 15.9% | 72.7% |
| 3. Using Digital Productivity Tools to Prepare Students for College and Career | 15.9% | 18.2% | 31.8% | 27.3% | 6.8% | 65.9% |
| 4. Developing Digital Learning Materials and Assessments | 18.2% | 22.7% | 20.5% | 25.0% | 13.6% | 59.1% |
| 5. Promoting Digital Citizenship | 13.6% | 34.1% | 22.7% | 27.3% | 2.3% | 52.3% |
| 6. Digital Classroom Management Models | 15.9% | 18.2% | 25.0% | 31.8% | 9.1% | 65.9% |
| 7. Using Digital Collaboration and Communication Tools | 27.3% | 15.9% | 27.3% | 25.0% | 4.5% | 56.8% |
| 8. Conducting/ Participating in Digital Professional Development | 20.9% | 18.6% | 25.6% | 30.2% | 4.7% | 60.5% |

For all but one of the eight topics, 52% or greater of responding districts indicated a need for additional or new professional development support that UEN could provide. The top three areas of greatest need were:

- Using Digital Creativity Tools to Inspire and Innovate
- Digital Classroom Management Models
- Using Digital Productivity Tools to Prepare Students for College and Career

These needs generally correlate with the previously presented gap analysis. For example:

- On average, districts reported that “Using Digital Creativity Tools to Inspire and Innovate” is the topic with the greatest gap between current and ideal amounts of professional development. This topic was also identified by the greatest number of districts as an area where new or additional UEN support was needed.
- The topic, “Digital Classroom Management Models” has the second largest gap between current and ideal professional development. This topic was second-ranked by districts in terms of the number requesting new or additional UEN support.

IV. Facilitating Professional Learning: Solution System Overview

Predicated on best practice, and in response to district-identified needs outlined in the previous section of this plan, this section presents a *conceptual* plan for professional learning across the state of Utah. The plan presents key components of a “solution system” that is research-based, leverages existing infrastructure and best practice where present, and ensures teachers will receive the 360° support necessary to initiate, support and sustain their integration of targeted skills and strategies.

This plan responds to the need for statewide development of education personnel in all areas related to the use of technology for teaching and learning. The Professional Learning Solution System is designed to be both systematic and systemic:

- Systematic—Best practices and an inventory of district-identified needs have provided the inputs to which this plan responds; embedded, ongoing evaluation will be used to monitor activities, assess progress, and adjust solutions—for purposes of continuously improving the plan and the related performance of those it supports.
- Systemic—The plan provides a range of solutions that are integrated into the school system at multiple levels and over time in order to facilitate lasting change and continuous improvement for educators and administrators.

The following figure provides an overview of the solution system components, which have been designed to “surround” the educator (360°) with the necessary supports to integrate technology into teaching and learning. Additionally, these supports rely upon Utah educators, over time, to innovate and share best practice with their peers.

Figure 2. Professional Learning Solution System Model





Solution System Component 1: Training

While training or professional learning in and of itself is typically insufficient in bringing about lasting change in performance, it remains a core component of the overall Professional Learning Solution System.

Conditions of Training

Training is useful when a quantified gap exists between an educator’s current skills and knowledge and the skills and knowledge necessary for success in the classroom. That stated, it must also be noted that training is often viewed as a “go-to” solution for any performance deficit. Research in the workplace has suggested that, on average, only 20% of performance problems can be attributed solely to an individual’s lack of skills and knowledge. Inversely, over 80% of performance challenges have root causes other than or in addition to a skills/knowledge deficit. Therefore, careful attention must be paid when contemplating training to make certain that a full range of barriers is considered. Specifically, training must be predicated on the confirmation that complementary performance drivers are in place, including:

- **Motivation:** An intrinsic combination of **value for performance**—meaning the educator sees value in the training, and **confidence to perform**—meaning the educator has reasonable belief that s/he can be successful applying the trained skills.
- **Environment:** The educator has access to the necessary tools and resources to be successful.
- **Incentives:** An extrinsic reason to perform—for example, administrator buy-in and priority (external incentives can drive intrinsic value for performance)

All training should not only target the desired skills and knowledge for educators, but should also address reasons for performance (value) and provide opportunities for educators to build their confidence with trained skills through practice whenever possible. Likewise, training must reflect the actual environment in which trained skills will be applied. This means that the tools and resources used in the training should be available in the classroom following training so teachers can immediately apply the skills they learned.

Modes of Training

Currently, face-to-face training conducted over the course of one day or less is the most common approach across the state of Utah. Online forms of training, including webinars and recorded training sessions, are currently receiving less use. As priority topics for training are identified, state leadership will be challenged to determine which topics are necessarily delivered (a) in person, (b) in real time via technology, and (c) through recorded content. The following table offers a range of considerations for each of the three delivery modes.

Table 5: Training Delivery Mode Considerations

| Mode | Benefits | Limitations |
|--|---|---|
| Face-to-Face Training | <ul style="list-style-type: none"> • Familiar to learners • Provides opportunities for social interaction with peers • Skilled instructor can adjust instruction in real-time, based on student needs and input | <ul style="list-style-type: none"> • Costly (more time away from classroom, coverage of classroom) • Often difficult to schedule • Requires physical space to accommodate learners, which often limits number of individuals who can be trained at one time |
| Online, Real-Time Training (synchronous) | <ul style="list-style-type: none"> • Opportunities to adjust instruction in real-time, based on student needs • Avoids costs of travel, and time dedicated to the same • Can accommodate large numbers of learners at the same time, without physical space requirements | <ul style="list-style-type: none"> • Challenging when audience is limited in their technological skills • Interaction among learners can be difficult to facilitate • For success, requires careful preparation of instructor to effectively deliver content in the online environment (and use engagement tools to maintain learner interest) |
| Online, Recorded Training (asynchronous) | <ul style="list-style-type: none"> • Available at time of need • Can be produced to support quick reference on targeted topics | <ul style="list-style-type: none"> • No opportunity for real-time interaction with instructor or peers • Lacks ability to adjust content based on feedback from learners |

Recommendations for Training

UEN has established a diverse portfolio of training and support products. Survey responses suggest that these professional learning resources are not only used, but are held in high regard by most participants. This portfolio is deliberately aligned with educator needs, specific to teaching and learning with technology. However, data from the statewide inventory (presented in the previous section of this report) indicate that *district needs are increasing*, and that districts seek *considerably more support* from UEN, relative to what is currently provided. The following recommendations are predicated on these data, professional learning research and best practice:

- Evolve a training portfolio over time by prioritizing training based on district needs and employing perennial needs assessments through participant feedback and district-level data collection and monitoring.
- Prioritize available training time for content that is complex, or content that requires dedicated time to build value for the involved skills or knowledge.
- Before conducting training, ensure leadership support is in place, and environmental supports are fully available (i.e., trained technology must be readily available in the classroom post-training).
- Base decisions about the delivery mode on complexity of content, needs for learner interaction, and learner sophistication with technology.
- Support districts in procuring effective training for teachers through tools for vetting external training providers.

- Recognize teachers as they demonstrate key technology-related skills. Badges or micro-certification are two approaches that merit consideration—which should include analysis of either approach specific to teacher reception and value².

² The literature on badge systems thus far is mixed in terms of the effects of a badging system on motivation. See Finkelstein, Knight, & Manning (2013) and Ferdig & Pytash (2014).

PROFESSIONAL LEARNING COMMUNITIES

Solution System Component 2: Professional Learning Communities

Professional Learning Communities provide a vital link between training and the application of trained skills. Additionally, educators working together can enhance their skills, learn from one another, hold each other accountable as they implement their new skills, and innovate over time. The result is both insurance for implementing trained skills and knowledge, and the prospect of innovation as educators embed and evolve these practices in the classroom over time.

Professional Learning Community (PLC) Definition

DuFour (2004) sets forth the characteristics of a Professional Learning Community (PLC) as a group of interested educators who come together with a commitment to: (1) ensure that students learn; (2) working within a culture of collaboration; (3) a focus on results. DuFour further suggests that creating a professional learning community requires educators to “focus on learning rather than on teaching, work collaboratively, and hold yourself accountable for results” (p. 6).

The Role for PLCs

PLCs are a necessary ingredient to the long-term success of any significant professional learning plan. In the case of the Utah Master Plan, integrating the transition to new practices of teaching and learning with technology into existing PLCs within Utah schools will serve to:

1. Hasten the application of skills and knowledge obtained through training by providing an environment of peer accountability
2. Provide a forum for mutual support and ongoing dialog, including the sharing of challenges and success
3. Deepen trained skills and knowledge through analysis and reflection of results based on student performance outcomes
4. Spawn innovation through a push for continuous exploration and innovation

Recommendations for Professional Learning Communities

- Conduct a needs assessment of current infrastructure throughout the state’s schools to determine current PLC penetration and capacity, and address gaps as necessary. Technology-focused work may provide an ideal opportunity to establish PLCs in schools and districts where this research-based approach to professional learning is not already established.
- Provide leveled PLC support for schools to accommodate those starting PLCs and those with currently functioning PLCs. This support should include guidelines for conducting PLC sessions and tools for tracking the progress and impact of PLC efforts.
- Embrace all members of the school-wide community who influence student learning.
- Focus on particular issues in a school or district that can benefit from the application and consistent use of new technology-related solutions.
- Integrate the use of digital communication and productivity tools into every day community practice, in support of PLC efforts.

READY REFERENCES

Solution System Component 3: Ready References

New skills and knowledge are not always acquired as a result of *pushing* information to participants during formal training. In today's connected world, we regularly use technology-delivered resources to *pull* information to us at time-of-need. Yet, finding the optimal reference matched to our immediate needs can be a time-intensive pursuit.

Ready References Description

Rossett & Schafer (2006) describe performance support as “[A] helper in life and work” and “a repository for information, processes, and perspectives that inform and guide.” Performance support tools share some common characteristics that differentiate them from training, and at the same time make them a natural complement to training. Performance support tools are:

- Information repositories external to the individual (paper, online, etc.) that reduce or eliminate reliance on long-term memory
- Comprised of best practice gleaned from successful or expert performers
- Available on demand to provide support at time of need
- Used during the performance of a given task to guide and enlighten performance
- Resources that help the novice perform more like an expert

Performance support tools provide alternatives, and sometimes enhancements, to training. Traditional training sends targeted content to the long-term memory of participants through dedicated time spent in a classroom, or through content delivered in an online or non-traditional classroom context. Unlike training, performance support eliminates reliance on long-term memory and instead alters the performance environment (i.e., classroom, PLC) with performance support tools that guide and enlighten performance so that learning happens incidentally.

Ready references, along with training, are another component of the support UEN currently offers to district across the state. These extensive resources are available to educators 24/7 and fulfill the purposes described as described in the preceding definition.

The Role for Ready References

The decision about whether to train or provide performance support has serious implications. Training typically requires time away from work, thus incurring costs for classroom coverage (in the case of teachers) and, potentially, travel. Additionally, there are costs for developing the training, the training materials, and the instructor. Performance support tools carry some development cost, but typically require less investment relative to training. Additionally, because performance support tools are designed to be used in the normal work routine, they avoid costs related to being away from the job.

Performance support tools also act as a “bridge” between training and application. These tools can be taken back to the classroom or workplace following training and used to help transition trained skills into practice. In other words, performance support tools can help make trained skills “stick.”

Ready References vs. Best Practice Repository Components

In the Professional Learning Solution System, there is intended overlap between Ready References and the Best Practice Repository that follows. The intent is to provide a range of ready references that include quick start tools for common tasks, proven lesson plans involving the use of varied levels technology, and vetted technology assets (i.e., electronic flipcharts, apps, Excel templates) that educators can integrate into their classrooms. Additionally, this professional learning plan seeks to generate contributions of similar produces through the Best Practice Repository, as educators across the state innovate and establish new uses for technology in their work.

Recommendations for Ready References

- Conduct gap analysis involving existing UEN resources, and other sourced materials, against priority needs identified by districts.
- Review priority needs and make decisions about which needs require training, which can be supported through performance support tools, and which require a combination of both strategies.
- Expand the suite of existing performance support tools, prioritized by need. Tools should share standard structure, visual layout, and look and feel for ease of use and to help users build familiarity. Pilot test each tool before making it available statewide.
- Confirm UEN as a central “go-to” source for performance support tools, for statewide district and school access. Recommend review to ensure a user-focused structure and organization, search capabilities, and responsiveness to the different classifications of school personnel who seek to access these tools.

The logo consists of an orange rounded rectangle with the words "BEST PRACTICE REPOSITORY" in white, bold, uppercase letters. "BEST" is on the top line, "PRACTICE" is on the second line, and "REPOSITORY" is on the third line.

Solution System Component 4: Best Practice Repository

With an infusion of technology and support for building the capacity of Utah’s educators to increase the use of technology in their teaching practice, it is reasonable to expect innovation and the development of best practices across the state. While PLCs will serve to disseminate best practices within schools, this plan must also anticipate the need for sharing practice across schools, districts and throughout the state.

Best Practice: Benefitting from Knowledge Management

Davenport and Prusak (1994) define knowledge management as “the process of capturing, distributing, and effectively using knowledge” (p. 95). McInerney (2002) says that knowledge management is an effort to increase useful knowledge within an organization. Knowledge management includes encouraging communication, offering opportunities to learn, and promoting the sharing of appropriate knowledge objects or artifacts.

The Role for a Best Practice Repository

The state’s investment in both infrastructure and human resources will yield new ways of teaching and supporting learning. Unless carefully addressed, such efforts will likely remain isolated within the very classroom or school in which they emerged. A Best Practice repository provides opportunities for collecting, organizing and disseminating best practices that emerge from educators across the state. Best practices may take many forms:

- Lesson plans
- Electronic teaching resources (PowerPoint, interactive white board files)
- Digital Applications

This approach employs “crowdsourcing” to populate the repository, and requires a form of review—but not one that is so burdensome that it all but halts the sharing and dissemination of resources. Additionally, educators should be encouraged to share their perspectives on posted resources, perhaps by employing a rating system, so that the value of resources is recorded over time.

Historically, these types of systems effectively serve the purpose of dissemination. However, growing the repository requires an investment. Incentives such as reward and recognition—or simply an expectation for participation as part of local accountability measures—must be provided to motivate educators to share resources, which takes time and effort. The use of a badging system may hold promise as a means for incentivizing teacher contributions.

Recommendations for Professional Learning Communities

- Collect existing performance support tools for review and identify those to make available statewide.
- Review priority needs and make decisions about which needs require training, which can be supported through performance support tools, and which require a combination of both strategies.
- Develop a suite of performance support tools prioritized by need. Tools should share standard structure, visual layout, and look and feel for ease of use and to help users build familiarity.

- Establish a central repository to host performance support tools for statewide district and school access. The repository must have a user-focused structure and organization, offer search capabilities, and reflect the different classifications of school personnel who will seek to access tools.

A purple rounded square icon with the words "EXPERT ACCESS" in white, bold, sans-serif capital letters.

EXPERT ACCESS

Solution System Component 5: Expert Access

Having experts at multiple levels available to educators during this transition is vital to implementing the statewide professional learning plan.

Rationale for Access to Experts

Even with the best training and performance support tools, teachers may lose their motivation to implement or extend their use of technology without someone to turn to for personal support at time of need. The role of experts within a school site or district is long established: Teachers on Special Assignment (TOSAs) and resource teachers are just two examples of such expert roles. Ertmer suggests that “ongoing technical and pedagogical support” is an important component of successfully training teachers to integrate technology (2005, p. 35).

The Role for Experts

This plan requires experts at multiple levels across the state. It formalizes existing infrastructure to provide tiered support. These four tiers include:

- **School-identified implementation expert:** A teacher’s immediate source for support and guidance. The role may include active participation in site-level PLC efforts.
- **District-identified implementation expert:** Provides support to school-level experts through ongoing training and serves as the point-of-contact for troubleshooting challenges that cannot be resolved at the site level.
- **Regional center experts:** Provide support to district-level experts as requested and offer training and guidance to develop district and school personnel.
- **UEN experts:** Provide support to both district and regional center experts as requested on areas and topics requested by the UEN.

The juxtaposition of “Expert Access” to “Training” in the visual representation of the Professional Learning Solution System is intentional. These experts are currently, and will continue to be, responsible for much of the training provided to teachers across the state.

Recommendations for Experts

- Create a job description for each expert category that includes qualifications, expectations and responsibilities.
- Establish a process for identifying and indexing expert supports at all identified levels.
- Operate a system to monitor and review expert support provided to educators. Use generated data to improve access and effectiveness of support provided.
- Identify and attend to the ongoing development of identified experts, with the rationale that experts will have unique opportunities to identify and disseminate best practices over time.

V. Bringing the Plan Together

The full, five-part solution system described in this plan is necessary if teachers across the state of Utah are to increase their knowledge and abilities specific to teaching and learning with technology. The five components work together to address the goal of teacher performance with technology *systemically*. They have been selected to support and guide teachers on their individual journeys—from novice to expert—so they may ultimately become innovators who contribute their expertise to the benefit of colleagues across the state.

It will take time to realize benefits from this professional learning work. Therefore, it is recommended that data specific to use of the plan's components and levels of performance is collected and regularly reviewed. Tracking teacher participation in, and use of, solution system components is an important process measure for use in validating and optimizing this plan. In addition, as teachers demonstrate competency in priority areas, that mastery must be both acknowledged and documented as part of the ongoing evaluation of the professional learning solution system. Reward and recognition approaches to be considered include both badges and micro-credentialing.

The plan presented here is responsive to the needs of educators across the state in 2016. However, as new technologies are introduced and capacity is increased through the very solutions presented here, there must be an ongoing review of the approaches and the balance of solutions available to educators. It is only through an iterative, data-driven process that educator needs will continue to be met, and performance will continue to reach ever-higher levels.

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