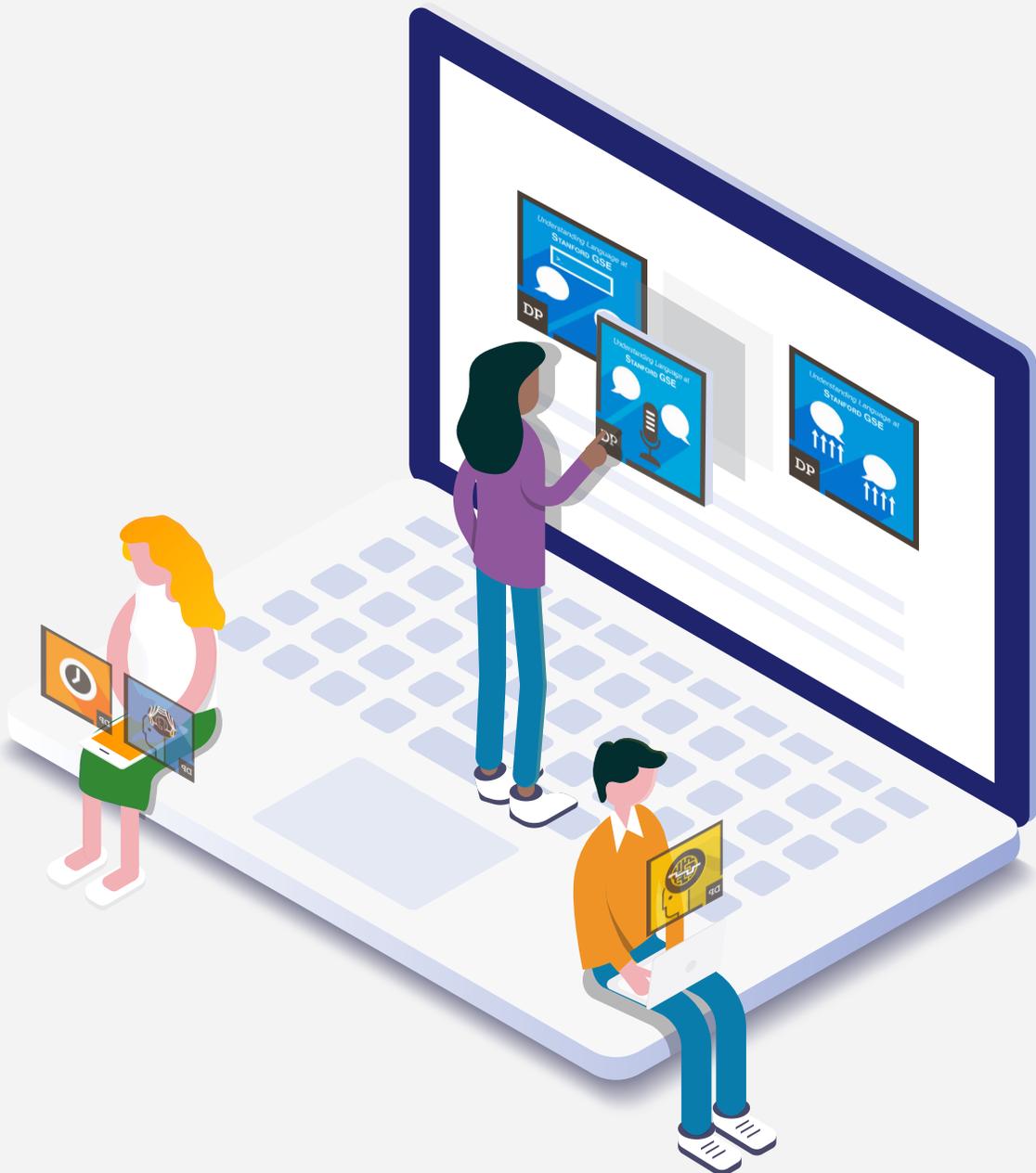


Research and Educator Micro-credentials

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Micro-credentials for educators offer an important opportunity to strengthen professional learning at scale.

Accessed and awarded online, micro-credentials leverage an online technology platform to provide educators competency-based, on-demand, personalized, and shareable opportunities to demonstrate and be recognized for their professional learning. It's a sea change from oftentimes ineffective, traditional "drive-by" professional development that educators experience all too commonly. Early adopters are expressing enthusiasm for these more relevant performance-based assessments and the organic professional learning communities that are materializing to support the learning and earning process.

Grounding micro-credentials in research is central to their gaining acceptance in the field and realizing their transformative potential. Since embarking on a journey in 2013 toward its current role as creator and steward of an ecosystem including more than 40 active issuing organizations and over 400 published micro-credentials, Digital Promise has put research at the center of the micro-credential development, evidence submission, and assessment processes. The result is a rapidly growing constellation of state education agencies and school districts who are offering an array of incentives for earners, including continuing education units, points toward licensure renewal, and financial rewards.

This paper will examine how Digital Promise has ensured the content of micro-credentials and the process for earning them are anchored in quality research.



Issuing Organizations Driven by Research

Issuing organizations serve as authors and assessors of their micro-credentials. The diversity of these issuing organizations and their expertise provides earners with a broad and growing menu of options, including specialized offerings like *Budgeting with Simulations* (issued by the Global Financial Literacy Excellence Center at The George Washington University) and universal ones like *Growth Mindset* (one of 94 micro-credentials issued directly by Digital Promise).

Digital Promise begins by screening prospective issuers to understand the research grounding their work. For example, the Center for Collaborative Education (CCE) has, over the past decade, built a library of renowned research-backed tools and resources related to quality performance assessment. In 2016, in order to expand access to its resources, CCE was awarded an Assessment for Learning grant to create a stack of three micro-credentials rooted in its introductory, highest-leverage areas: *Performance Assessment Design*, *Competency-Based Rubric Design*, and *Performance Assessment Validity*. Since launching these micro-credentials, CCE has developed an additional stack on *Performance Assessment for Equity*, which covers culturally responsive assessment and assessing English language learners.

Similarly, The Center for Transformative Teaching and Learning (CTTL) at St. Andrew's Episcopal School, which roots its work in Mind, Brain, and Education (MBE) science, developed micro-credentials from the organization's deep research base. The resulting stack of three MBE micro-credentials are *Neuro-truths in the Classroom*, *Neuro-myth Busting*, and *Neuroplasticity: Educators as Brain-Changers*. These all draw upon the established literature

underpinning its work as well its own original research, published in the book *Neuroteach: Brain Science and the Future of Education*, co-written by CTTL Director Glenn Whitman and the CTTL's Head of Research, Dr. Ian Kelleher.

Translating the work of research-based organizations into rigorous micro-credentials empowers educators to access resources that strengthen and demonstrate key skills and knowledge. "We took our best and most applicable content for the classroom and worked with Digital Promise to bring it to life and make it accessible online as micro-credentials," said Whitman. "This kind of tool can help change a teacher's Mind, Brain, and Education mindset, knowledge, and research to practice translation skills and get them to try something different in class, because they're learning from the CTTL's experience and expertise and using research and gathering evidence to show they can apply Mind, Brain, and Education science in their work."

The Global Financial Literacy Excellence Center (GFLEC) followed a similar path as it expanded the scope of its activities from its founding as a research center to include offering educational programs to fill the gaps of knowledge identified by its research.

GFLEC produced a broad array of instructional resources written by experts in curriculum and instruction as well as financial literacy experts. Their work was guided by an engaged advisory council. GFLEC was well-positioned to convert those educational resources into micro-

credentials, initially emphasizing high-needed areas for American students identified by the research: student loans, taxes, insurance, and credit scores. In the past year, GFLEC has expanded its offering to 20 micro-credentials published in the Digital Promise ecosystem.

Micro-credential Content Grounded in Research

Before drafting micro-credentials, the issuing organization engages with Digital Promise in a stress test for their vision. They are invited to respond to “Five Key Questions for Identifying and Developing Educator Micro-credentials”:

1. What competencies are important to educators?

Issuers identify what discrete skill the proposed micro-credential will ask an educator to demonstrate.

2. Is the competency demonstrable?

Issuers focus on competencies that can be demonstrated through the submission of artifacts and scored against a rubric.

3. What does the research suggest?

Issuers identify existing research that supports the competency and ensures strong alignment between the research, key method, and submission requirements.

4. Once a competency has been isolated, how much evidence is the right amount of evidence, what evidence is appropriate, and how would an educator demonstrate the competency? What evidence would indicate a successful demonstration of the competency?

This also provides a litmus test for the “granularity” (too big or too small) of the competencies.

5. What other related competencies would an educator demonstrate while they are demonstrating the selected competency?

Linking one micro-credential competency to another helps develop logical pathways and stacks of micro-credentials.

A vision articulated in responses to these five key questions increases the likelihood that the published micro-credentials meet the rigorous and consistent standards of clarity and quality. Issuers then engage in a training and an ongoing consulting relationship with Digital Promise to help them shape their concept for micro-credentials and prepare for publication.

Issuers then draft their micro-credentials using the Digital Promise template:

- Title
- Competency
- Key Method
- Method Components
- Supporting Rationale and Research
- Resources
- Submission Guidelines and Criteria
 - Part 1: Overview Questions
 - Part 2: Work Examples/Artifacts/ Evidence and Scoring Guide
 - Part 3: Reflection (optional)

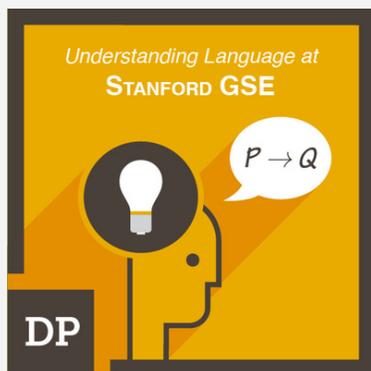
Julie Kasper, Refugee Educator Academy Program Manager at the Carey Institute for Global Good, described the template as “constraining in a good way—and really rigorous.” The organization knew it was working from strong research on refugee populations and pedagogy for its *Sustainable Learning Design for Refugee Educators* micro-credential, but found the translation to a micro-credential format to be a constructive challenge. Kasper explained, “The template forced us to think about the language we were using and the research we were citing. We rewrote and revised to make sure we had clarity. It made us slow down. Also it challenged us to find and cite research that is openly available, since some of the key research for our work isn’t public. Doing those additional layers of research strengthened our work and our micro-credential.”

Barnett Berry, CEO of the Center for Teaching Quality (CTQ), observed that the practitioners who CTQ engaged during the micro-credential development process found the template effective. “What makes [the] Digital Promise framework powerful and useful is that any issuer is expected to orient their constructs to a referenced set of evidence of the teaching work that is being assessed,” Berry said. Since CTQ’s micro-credential content emphasized teacher leadership, the organization hosted a working retreat for accomplished teacher leaders and Digital Promise staff in which practitioners showed, as Berry explained it, “*prima facie* evidence that the skills measured in a given micro-credential had practical validation.”

Digital Promise’s template for micro-credentials supports a collaboration with the National Education Association (NEA), which has adopted its model to publish 120 micro-credentials on its own platform for three million members to access. In using the “Five Key Questions” and template, NEA ensured its authors of micro-credentials started the process by collecting and citing a solid research base. “Digital Promise vetted it very closely and pushed back plenty of times,” said Brandy Bixler, NEA’s Digital Learning Specialist who managed the project. “All research cited needed to be relevant, current, and free online. Our writers appreciated the push and the [resulting] micro-credentials are very high-quality.”

Digital Promise checks to ensure the research base of each micro-credential is current and that issuers include freely accessible online research in their list of citations. This empowers earners and explorers to engage as scholars with the teaching moves and mindsets for which they will be assessed. The citations in the “Fostering the Language of Argumentation” micro-credential developed by Understanding Language/SCALE at Stanford GSE demonstrate the rich research provided within each micro-credential (See Figure 1).

Figure 1: Example of citations in a micro-credential



- Cheuk, T. (2013). Relationships and convergences among the mathematics, science, and ELA practices. Refined version of diagram created by the Understanding Language Initiative for ELP Standards. Palo Alto, CA: Stanford University. http://ell.stanford.edu/sites/default/files/VennDiagram_practices_v11%208-30-13%20color.pdf
- Committee on Conceptual Framework for the New K-12 Science Education Standard (2012). A framework for K-12 science education: Practices, crosscutting concepts, and core ideas. National Research Council. Read pages 71-74. <http://bit.ly/2xeFweU>
- Valdés, G., Kibler, A., & Walquí, A. (2014, March). Changes in the expertise of ESL professionals: Knowledge and action in an era of new standards. Alexandria, VA: TESOL International Association. (suggested reading, pages 10-17). <http://bit.ly/1qqIYp9>

Validating micro-credentials in the Digital Promise ecosystem begins during content development and extends through the first 50 submissions of any new micro-credentials. Each issuer in the Digital Promise ecosystem agrees to use the first 50 submissions to confirm the micro-credential's quality and the appropriateness of the evidence requirement, and modify its content if necessary. This also strengthens its relevance to educator practice and its credibility for prospective recognizers.

One exemplary issuing organization, the Friday Institute for Educational Innovation at North Carolina State University, has completed the validation process for six micro-credentials, with another 20 nearly complete as of December 2018. To validate each micro-credential, the Friday Institute uses two phases: construct validity and interrater reliability.

Construct validity takes place before offering the micro-credentials to educators. Here, the Friday Institute asks educators

and experts for feedback on the questions and rubrics themselves. This feedback helps to ensure the questions are both clear and aligned to the definition of the construct in the micro-credential.

After incorporating the initial feedback for construct validity, the Friday Institute team pilots each micro-credential for the first 50 submissions. Each submission has two or more independent evaluations/grades from outside educators who possess in-depth understanding of the content of the micro-credential. Given the rubric definitions and qualifications of the evaluators, agreement among the evaluators as independent judges is expected. After receiving 50 submissions, a third evaluator checks the evaluators' results for interrater reliability. The Friday Institute team validates a rubric only if it has at least 80 percent agreement between the two reviewers. If not, the team reviews the rubrics to investigate trends in disagreement and clarifies the rubrics as needed.

Research-Based Professional Learning Practices

Earning micro-credentials is a high-leverage professional learning activity, and one that aligns with Learning Forward's quintessential Standards for Professional Learning¹ as well as research on adult learning.

Learning Communities, the first Standard for Professional Learning, emerges as a central component of many earners' micro-credential experiences. In 2016, Juab School District in Utah ran a pilot offering micro-credentials in the Digital Promise ecosystem for its 117 teachers and observed a meaningful uptick in healthy professional learning behavior, especially around the Learning Communities standard. "We've seen a lot of things spring up organically," observed Krystle Bassett, innovation specialist for the district. She added, "Lots of collaborative learning is happening and PLC groups are anchoring work on the micro-credentials. We know that coaching makes a difference for teachers. Coaching isn't necessarily built into the micro-credential platform, but that kind of support among peers has started organically because of the micro-credential structure." Delighted with the results, Juab School District has continued offering micro-credentials with incentives for earners, including \$200 stipends, 0.5 credits on the district salary schedule, and eight hours toward licensure renewal.

Earning micro-credentials focused on teacher leadership aligns to the Standard for Professional Learning on Leadership. Clark County School District in Las Vegas, Nevada, for example, offers three stacks of micro-credentials for their educators and provides cohort-based support for current and prospective leaders interested in serving on "School Organizational Teams."

Standards for Professional Learning

- Learning Communities
- Leadership
- Resources
- Learning Designs
- Data
- Implementation
- Outcomes

Learn more at
www.learningforward.org/standards

Finding success by aligning with the Learning Communities and Leadership standards resonates for CTQ, which has supported dozens of micro-credential pilots in Arkansas, California, Kentucky, Nevada, Pennsylvania, and South Carolina. Jennifer Barnett, who serves as Services Specialist for CTQ and led the pilots, explained, "We find a great deal of success when a theory of action and a shared plan for support are present. A full support plan has many parts and is shared with educators well ahead of a pilot or implementation. The support plan should include 'the why' or the current vision for micro-credentials, the range of micro-credential choices, the incentives, the supports available during the submission process, and the timeline."

Micro-credentials also align to other Standards for Professional Learning, including Implementation (the ability to structure micro-credential earning as a sustained and intensive process), Resources (micro-credentials in the Digital Promise ecosystem include curated resources) and Data (building portfolios of relevant evidence to demonstrate competence).

The personalized aspect of micro-credentials—that educators have agency to select which micro-credentials to earn—aligns with the Learning Designs Standard for Professional Learning, and also fits three research-backed interventions identified for enhancing learner interest: contexts evoking prior individual interest, problem-based learning, and enhancing utility value.²

Additionally, the micro-credential process is supported by the Core Adult Learning Principles outlined by Knowles, Holton, and Swanson in their seminal *Andragogy in Practice* model³:

1. Learner’s Need to Know (why, what, and how)
2. Self-Concept of the Learner (autonomous and self-directing)
3. Prior Experience of the Learner (resources and mental models)
4. Readiness to Learn (life-related and developmental task)
5. Orientation to Learning (problem-centered and contextual)
6. Motivation to Learn (intrinsic value and personal payoff)

Ken Simon, Chief Learning Officer at World Savvy, has led his organization’s work issuing micro-credentials on global competencies since 2015. Starting the journey as a self-described “grumpy skeptic,” Simon is now so persuaded by the empowering adult learning potential of micro-credentials that he is pushing his own colleagues to go through the process to earn micro-credentials themselves. “When developing our micro-credentials, we wanted to make them as rigorous as possible and offer tons of resources and models,” Simon

explained. “And we learned that internally we may have a mindset, but not everyone may have a deep understanding of the strategies. That’s where micro-credentials are so promising; whether it’s with cohorts of teachers in Mexico working on *Small Group Discussions for Critical Thinking about Global Issues*, or with our internal team, they lend themselves to deep engagement and collaboration—for example, not just reading an article but also discussing it—and that’s how mindsets are built.

Recognizing the Value of Micro-credentials

The relevance and quality of the professional learning opportunities that the ecosystem affords is increasingly validated as micro-credentials are incorporated into professional learning systems. Each semester, more recognizers are approving the earning of micro-credentials in the Digital Promise ecosystem as official professional achievements, leading to the conferring of continuing education units, stipends, and postsecondary credit.

When the Clark County Education Association (CCEA) and the Clark County School District (CCSD) in Nevada collaborated to design the “Professional Growth System” for its 18,000 employees, the CCEA and CCSD included in the online professional development section of its Professional Growth System Reference Guide, “Only micro-credentials approved by Digital Promise may be utilized.”⁴ As Director of Professional Learning at Clark County Education Association, Brenda Pearson collaborated with CCSD to develop the new Professional Growth System. She explained, “Digital Promise is the gold standard. It’s a high and consistent standard, and doesn’t offer an easy path. That consistency across all micro-credentials is important. Our educators love it, because these micro-credentials tie the knowledge to the practice and that’s what has been missing in so much professional development. Teachers want evidence of what they’re doing, where they’re starting from, and what they can learn.”

Kettle Moraine School District, which employs 288 teachers in Waukesha County, Wisconsin, has attached incentives to Digital Promise micro-credentials since the 2015-2016 school year. The district furnishes teachers with a

list of recommended micro-credentials but affords them the opportunity to pursue any micro-credential on the platform that they are interested to earn. Rewards for earning a micro-credential range from a \$200 to \$600 base salary increase, with most worth a \$400 bump. Theresa Ewald, Assistant Superintendent of Teaching and Learning, explained Kettle Moraine’s buy-in: “Our commitment to the micro-credentials grew from our experiences with the content provided and skills expected. The list of resources provided as part of each micro-credential also provides assurance of a strong alignment to research and best practices. Of most importance, however, is the work my teachers are doing as a result of their learning and the impact on our learners.”

In 2018, the review board for continuing education at the University of North Dakota College of Education and Human Development examined and verified all 93 micro-credentials developed by NEA using Digital Promise’s protocols, approving them as “professional development equivalency” credits that can count toward educator licensure renewal, salary advancement, and in some cases graduate credit. Since that approval, Patty Barrette, Director of

Professional Learning for the state of North Dakota, reports a surge of interest in earning these micro-credentials in districts and professional learning communities around the state. “They like it not just because of the credit, but because they can select micro-credentials that fit their priorities,” Barrette

said. “Offering the credit is a huge incentive.” The review board’s acknowledgment of the micro-credentials’ rigor and research base sends a signal to the field about the micro-credentials’ quality as it opens up opportunities for educators across the state to engage in relevant, empowering professional learning.

Conclusion

By definition, innovation aims to stretch the field to a new place. While micro-credentials represent an innovative opportunity to power up professional learning for educators, Digital Promise has taken intentional steps in every stage of conceptualizing, building, and maintaining its ecosystem to ensure that all aspects of the micro-credentials it makes available to educators are aligned to solid research. Early signs for the Digital Promise ecosystem are encouraging, especially as more recognizers across the country continue to validate micro-credentials’ relevance and value by attaching substantive incentives for earners.

The depth of the research base around micro-credentials is poised to grow, as broader implementation and more high-caliber, research-rooted organizations joining the ecosystem as issuers will provide valuable opportunities for gaining insight into how earning micro-credentials impacts educator practice.

Acknowledgements

Digital Promise has built an [ecosystem of micro-credentials](#) in partnership with issuers, earners, and recognizers to personalize learning for educators. This work would not be possible without the support of these stakeholders. The authors would like to thank the individuals who allowed us to interview them: Gary Chapin, Glenn Whitman, Kristen Burnell, Julie Kasper, Barnett Berry, Brandy Bixler, Mary Ann Wolf, Krystle Bassett, Jennifer Barnett, Ken Simon, Brenda Pearson, Theresa Ewald, and Patty Barrette.

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