**Advisory Board on Teacher Education and Licensure’s Recommendations on**

**the Use of Microcredentials for Teacher Licensure in Response to Senate Bill 1419 and House Bill 2217 of the 2019 Virginia General Assembly**

**October 17, 2019**

***Teacher Education and Licensure***

***Virginia Department of Education***

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**Microcredentials for Teacher Licensure**

**Background**

The 2019 Virginia General Assembly passed identical bills, Senate Bill 1419 and House Bill 2217, which allow the Virginia Department of Education to establish a microcredential program that permits a Virginia teacher who holds a renewable or provisional license or an individual who participates in an alternate route to licensure to complete additional coursework and earn microcredentials in science, technology, engineering, and mathematics (STEM) endorsement areas, including computer science. The bills required that the Advisory Board on Teacher Education and Licensure (ABTEL) convene a workgroup to determine how such microcredentials could be used to award add-on endorsements and certifications for teachers in STEM endorsement areas, including computer science. The legislation noted that the work to complete a microcredential could be offered in person or in a blended format of in-person and online instruction. Any microcredential that does not contribute to an endorsement is eligible for consideration toward license renewal.

| Senate Bill 1419 and House Bill 2217 |
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| **CHAPTER 227***An Act to amend the Code of Virginia by adding a section numbered* [***22.1-299.7***](http://law.lis.virginia.gov/vacode/22.1-299.7)*, relating to the Department of Education; establishment of a microcredential program.* Be it enacted by the General Assembly of Virginia: 1. That the Code of Virginia is amended by adding a section numbered [**22.1-299.7**](http://law.lis.virginia.gov/vacode/22.1-299.7) as follows: *§* [***22.1-299.7***](http://law.lis.virginia.gov/vacode/22.1-299.7)*. Microcredential program; certain STEM subjects.**A. The Department of Education may establish a microcredential program for the purpose of permitting any public elementary or secondary school teacher who holds a renewable or provisional license or any individual who participates in any alternate route to licensure program to complete additional coursework and earn microcredentials in science, technology, engineering, and mathematics (STEM) endorsement areas, including computer science, for which there is a high need for additional qualified teachers.**B. The Department of Education shall* *direct the Advisory Board on Teacher Education and Licensure to convene a workgroup including pertinent education stakeholders* *to determine how any microcredential awarded pursuant to any microcredential program established pursuant to subsection A will be used to award add-on endorsements and certifications for teachers in STEM endorsement areas, including computer science, for which there is a high need for additional qualified teachers.* *C. Any course offered through any microcredential program established pursuant to subsection A shall be offered in-person or in a blended format of in-person and online instruction.**D.* *Any teacher who holds a renewable license and who participates, through any microcredential program offered pursuant to subsection A, in courses that do not contribute to an endorsement is eligible for professional development points toward renewal of his license for the number of in-person hours of coursework completed, upon providing a certificate of such participation from the course provider.* |

**Microcredentials and Digital Badges**

Microcredentials are an emerging way for teachers to demonstrate their knowledge and/or skill in a particular topic through competency-based evidence. The teacher determines a specific skill or content area to be addressed and identifies a microcredential associated with it. He or she completes the required assignments or tasks and submits evidence to the issuer of the microcredential for evaluation. If the microcredential was earned through electronic verification, typically the teacher receives a digital badge that can be added to a digital portfolio or backpack and/or used to enhance a résumé. In essence, the microcredential is what educators earn, and the badge is what they display. The concept of microcredentials and digital badges was originally used to document learning for students outside the classroom, but is now being considered as a way for teachers to learn new skills and apply them in the classroom.

The National Education Association (NEA) has issued guidance on microcredentials that encourages educators not to use the term digital badge and microcredential interchangeably. It notes that earning a professional microcredential requires time and effort, and the digital badge itself is simply the icon that represents the microcredential. (National Education Association (NEA), 2018)

**Verified Digital Badges**

Digital badges are visual symbols of accomplishment and are targeted to a specific area or skill. It is important to note that digital badges can be awarded for many different kinds of things, including gaming accomplishments or making frequent posts to discussion forums. The recognized effort for a digital badge may not be always competency-based, but instead may denote completion of a certain number of hours spent on a project or some other accomplishment recognized by the issuer.

In an educational context, badges can be awarded for a variety of accomplishments in both formal and informal learning by educational institutions, individuals, and employers. They are typically organized in badge systems and learning pathways to represent the skills and experiences that are valued in communities.

Most badges recognizable in the workplace are an “Open Badge.” An Open Badge is a specialized type of digital badge that contains verifiable metadata about achievements according to a common data format, the Open Badge specification. The Open Badge standard describes a method for packaging information about accomplishments, embedding it into portable image files, and establishing an infrastructure for badge validation.

Because Open Badges follow a common standard, recipients can combine badges from many different sources into common collections, and when they share them, these badges may be verified by any compatible system to ensure that they are trustworthy representations of their earner's experiences. Not all microcredentials currently available for teacher professional development offer digital badges that meet the Open Badge standard. An online Open Badge validator is available at <https://badgecheck.io/>. (Badgr, 2019)

**Components of a Microcredential**

In the field of education, microcredentials focus on a discrete skill that supports an educator’s practice. Educators must submit evidence that is evaluated by the issuer before the microcredential is awarded. “Seat-time” is generally not a factor in the awarding of a microcredential. In fact, some individuals may already have the skills required to earn a microcredential and simply assemble and submit the evidence to be evaluated. The components of a microcredential generally include:

* Stated Skill or Content Area – The instructions for the microcredential state the intended skill or content to be mastered, with a general overview of how it will be substantiated. (Example: *Practitioner co-creates a unique learning path with students based on their individual readiness, strengths, needs, and interest.*
* Components – This section outlines the activities to be conducted, leading to the evidence that will be submitted for evaluation
* Research and Resources – Generally there is no “course” required to earn a microcredential, so the microcredential issuer may need to provide research and resources to support the educator in mastering the topic or technique and preparing the evidence for submission. These resources may include articles or books to read, websites to review, videos to watch, etc.
* Submission Criteria – This section describes the evidence to be submitted for evaluation.
* Scoring Rubric – A rubric is provided that outlines the criteria that must be met in order to earn the microcredential.

A sample of the work required for a microcredential is found in Appendix A.

**Microcredential Stacks**

Microcredentials, which generally demonstrate competency in a very narrow area, can be “stacked” so that collectively they cover a broader range of knowledge or skills. IBM, for example, has issued over 500,000 microcredentials to employees and external learners who want to build “competency stacks” in fast changing areas. (Connecting Credentials, 2017) In the field of education, the Center for Collaborative Education has four stacks of microcredentials that address the topic of Performance Assessment for Learning. Listed below are two of its performance assessment stacks and the microcredentials required to complete them.

**Basic Performance Assessment Design**

* Design of performance assessments
* Design of competency-based rubrics
* Performance assessment validation

**Advanced Performance Assessment Design**

* Calibrating scoring among teachers
* Looking at student work
* Assessing habits, skills, and dispositions
* Using performance assessments to provide formative feedback

(French & Berry, 2017)

**Microcredential Issuers**

A wide array of organizations and institutions issues microcredentials on a broad list of topics. Some microcredentials are available to anyone who tries to earn them; others are designed for a specific audience or entity, such as teachers in a specific school district or members of an organization, and are not publicly available. Microcredential “issuers” include, but are not limited to, private corporations such as Microsoft and Hewlett Packard; colleges and universities such as the State University of New York and Arizona State University; and special interest groups such as The Nature Conservancy.

Some microcredential issuers in the field of education include, but are not limited to, the National Education Association, CodeVA, Radford University, Teaching Matters, the Center for Teaching Quality, the Illinois Principals Association, The Friday Institute for Educational Innovation at North Carolina State University, the Center for Collaborative Education, and the Public Broadcasting System (PBS).

**Topics Covered by Microcredentials**

Microcredentials are offered in many different areas, including, but not limited to, art and culture, computer science, engineering, food and nutrition, language and literature, law, management and leadership, music, personal development, and professional advancement. The majority of microcredentials that are currently being promoted in the field of education tend to address areas related to general classroom instruction and strategies rather than specific content knowledge. Examples of stacks offered by the NEA (Aurora Public Schools, n.d.), with the required microcredentials, include:

| Examples of Stacks (NEA) |
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| **Classroom Management Stack*** [Trauma-Informed Pedagogy](https://drive.google.com/open?id=0B8DXuPPV6FWvc09FcGlmX3JBVlk)
* [Addressing Challenging Behaviors](https://drive.google.com/open?id=0B8DXuPPV6FWvck1sT0UtV2g5MFE)
* [Aspects of an Engaged Classroom](https://drive.google.com/open?id=0B8DXuPPV6FWvQjRGcm55cVN1YUE)
* [Classroom Expectations and Routines](https://drive.google.com/open?id=0B8DXuPPV6FWvZGpEUXFnYXBWSWc)
* [Creating a Classroom Community](https://drive.google.com/open?id=0B8DXuPPV6FWvYTA4ZUhHM3ZWWXM)
* [Organizing the Physical Layout of the Classroom](https://drive.google.com/open?id=0B8DXuPPV6FWveE5hRkRrcW1sTWs)
 | **English Language Learners Stack*** [Advocating for ELL Students & Families - School Level](https://drive.google.com/open?id=0B8DXuPPV6FWvVEh3WDUycExmOVk)
* [Advocating for ELL Students & Families - Local, State, Federal Level](https://drive.google.com/open?id=0B8DXuPPV6FWvTl9xRWdvZ3ZpUkU)
* [Analyzing Assessments to Support ELL Learning](https://drive.google.com/open?id=0B8DXuPPV6FWvbm81Wk0zQmREWmM)
* [Understanding Academic Language](https://drive.google.com/open?id=0B8DXuPPV6FWvTHJxbkt4bDB4anc)
* [Understanding Second Language Acquisition Stages](https://drive.google.com/open?id=0B8DXuPPV6FWvTk5xSVpNcTVpczg)
* [Using ELL Strategies in the Classroom](https://drive.google.com/open?id=0B8DXuPPV6FWvVUo5MlpNSkhFRGs)
* [Using Formative Assessments to Support ELL Learning](https://drive.google.com/open?id=0B8DXuPPV6FWvZUNIbUoxb2dPaHc)
* [Using Standards to Plan for ELL Students](https://drive.google.com/open?id=0B8DXuPPV6FWvazlPU056RmZtT3c)
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| **Teacher Leadership Stack*** [Adult Learning](https://drive.google.com/open?id=0B8DXuPPV6FWvUE5KSW13Ukh5dlE)
* [Communication](https://drive.google.com/open?id=0B8DXuPPV6FWvY3JOSHhMd0R3TTQ)
* [Continuing Education and Learning](https://drive.google.com/open?id=0B8DXuPPV6FWvWXR6U2ttZFpfSlk)
* [Group Processes](https://drive.google.com/open?id=0B8DXuPPV6FWveDVTTHFNbHM1T3c)
* [Interpersonal Effectiveness](https://drive.google.com/open?id=0B8DXuPPV6FWvM2c3VWI0YU93WGM)
* [Personal Effectiveness](https://drive.google.com/open?id=0B8DXuPPV6FWvVXh5Qlpla2hOVmM)
* [Reflective Practice](https://drive.google.com/open?id=0B8DXuPPV6FWvQnlUMkVOanZGZEU)
* [Technology Facility](https://drive.google.com/open?id=0B8DXuPPV6FWvM3FhMWpiSENmY0k)
 | **Cooperating Teacher Stack*** [Equity Literacy](https://drive.google.com/open?id=0B8DXuPPV6FWvX205bFhPanl6TDQ)
* [Adult Learning - Andragogy](https://drive.google.com/open?id=0B8DXuPPV6FWvVzBvdnNCb3dybEU)
* [Listening and Non-Verbal Communication](https://drive.google.com/open?id=0B8DXuPPV6FWva3UtR2JzYmhXLTQ)
* [Managing Difficult Conversations](https://drive.google.com/open?id=0B8DXuPPV6FWvQTZ2X0hhTS0taEk)
* [Positive Professional Relationships](https://drive.google.com/open?id=0B8DXuPPV6FWvQ3VITUdvTk85eG8)
* [Post-Observation Feedback](https://drive.google.com/open?id=0B8DXuPPV6FWvb1hoeGN0TFFEZEk)
* [Teaching About Teaching](https://drive.google.com/open?id=0B8DXuPPV6FWvS3VtbFJBaXM4N28)
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**Microcredential Platforms**

Virtually any business, university, or organization can create and offer microcredentials, but microcredentials offered on two platforms tend to dominate the current PreK-12 microcredential landscape:

**BloomBoard** ([www.bloomboard.com](http://www.bloomboard.com)) was founded in 2010 as a for-profit company to take on the challenge of developing a teacher coaching platform that uses technology to apply the principles of differentiated instruction found in K-12 instruction to teacher development and support. Since that time, BloomBoard has evolved into a platform for professional learning via microcredentials, which are aimed primarily at teacher training. (BloomBoard, 2019)

**Digital Promise**, ([www.digtalpromise.org](http://www.digtalpromise.org)) also known as the National Center for Research in Advanced Information and Digital Technologies, is a nonprofit organization originated by the U.S. Congress with bipartisan support to advance technologies to transform teaching and learning. It was launched in 2011 with startup funds and support from the Department of Education as well as the Carnegie Corporation of New York and the William and Flora Hewlett Foundation. (The White House, 2011)

Digital Promise partners with many organizations on a number of educational and technology initiatives such as the League of Innovative Schools, Maker Learning, Challenge-Based Learning, and computational thinking. Since 2014, it has built an “ecosystem” of microcredentials in partnership with a coalition of organizations, educators, states, and school districts to personalize learning for educators. As of February 2019, at least 35 organizations offer over 300 microcredentials through Digital Promise, including the National Education Association, Arizona State University, Teaching Matters, and National Geographic. (Brown, 2019)

From its inception, Digital Promise used the BloomBoard platform to deliver and track these microcredentials. In 2018, BloomBoard and Digital Promise separated their microcredential work, and Digital Promise launched its own microcredential platform. (Tooley, 2019)

Many of the research reports related to microcredentialing for K-12 teachers have originated from BloomBoard, and Digital Promise, and their websites contain an extensive library of resources, including those created in collaboration with other organizations.

Examples of other providers of Massive Open Online Courses (MOOCs) and free online courses include:

**Coursera** ([www.coursera.org](http://www.coursera.org)) offers courses taught by instructors from universities and educational institutions. Courses include recorded video lectures, auto-graded and peer-reviewed assignments, and community discussion forums. When users complete courses, they receive sharable electronic course certificates. If they want to master a specific career skill, they can join a Specialization where they complete a series of rigorous courses and projects based on real business challenges to earn a Specialization Certificate.

**EdX** ([www.edx.org](http://www.edx.org)) primarily provides courses to the business world, including professional certificates in Six Sigma and Lean; and Microsoft Professional Programs in Artificial Intelligence, Cybersecurity, and Data Science.

**FutureLearn** ([www.futurelearn.com](http://www.futurelearn.com)) is a private company owned by The Open University. It has 57 partners from around the world and offers a diverse selection of courses from universities and cultural institutions. Upon completion of a course, users are awarded a digital certificate.

**Evaluation of Microcredential Evidence Submissions**

Microcredential issuers may hold differing expectations for the quality and quantity of work submitted as evidence for microcredentialing. Both Digital Promise and BloomBoard play a quality control role in the creation and issuing of microcredentials. In addition to providing the platform for their microcredentials, both organizations assist entities in the development of microcredentials to meet their needs, and both also serve as the accreditor of their respective microcredentials.

Digital Promise offers a framework to guide the development of each microcredential, and it works with prospective issuers to ensure the quality of the microcredential requirements. The microcredential issuers evaluate the evidence submitted by teachers. For example, NEA members review the submissions and provide direct feedback to educators. Seekers of microcredentials who do not achieve mastery may use the feedback provided to submit additional evidence of mastery.

Bloomboard works with a small number of research-focused organizations with instructional design expertise, such as American Institutes for Research (AIR), to develop microcredentials. It uses a rigorous, uniform internal process for certifying and calibrating reviewers of its microcredentials. Instead of having representatives from each individual issuer review the evidence submitted, BloomBoard trains independent reviewers (often National Board-Certified teachers) to determine whether the evidence submitted is sufficient. (Tooley, 2019)

**Cost of Microcredentials**

Microcredentials vary in cost to the earner, from no cost to fee-based. There may be additional cost if the microcredential is converted into college credits. Some states and school districts are piloting microcredentials and offer them to teachers at no cost. Sometimes the cost associated with a microcredential is covered by the membership dues/fees of the organization that issues it. In other instances, microcredential earners pay a fee. The fees typically support the creation and administration of the microcredential and pay for the reviewer to evaluate the evidence submitted.

Digital Promise provides various microcredential services to support schools, districts, states, and organizations in developing and implementing microcredentials. Services range from opportunities for educators to earn microcredentials from various issuers to analytics where schools and/or organizations can monitor the success of their microcredential earners. Digital Promise also provides introductory workshops on microcredentialing and assistance to entities interested in developing microcredentials for their own purposes.

As a point of reference, Digital Promise provides the following projected costs for professional services on its website:

Assessment Fees (Microcredential issuers may charge a fee to support the assessment of submitted evidence)

* Educators can pay per submission (prices listed on the platform)
* Districts, states, and organizations can prepay assessment fees in batches (includes processing fee)

Platform Data Reporting – ($10/educator)

* Provides insight into how a community of educators uses and is successful with microcredentials on the Digital Promise platform

Educator Workshop at a Specific Location – $3,000 (for up to 50 participants)

* Orientation to microcredentials
* Getting started with the Educator Microcredential platform
* Facilitated microcredential selection
* Structured collaboration with peers
* Preparing for learning, classroom implementation and evidence collection

Virtual Leadership Support – $3,000

* Virtual introduction of microcredentials for a leadership team
* Administration of professional learning needs analysis
* Support for the identification of program goals, participating educators, relevant microcredentials, and incentives
* Technical support and development of communication assets

Evaluation and Reporting – $2,500

* Administration of a pre- and post-survey
* Administrative feedback post survey
* Data analysis and report on findings

(Digital Promise, n.d.)

**Characteristics of Microcredentials**

Several characteristics make microcredentials attractive options for educator professional development:

* Competency-based – They require teachers to demonstrate actual skills and abilities through the submission of evidence such as lesson plans, videos, or other artifacts. They do not rely on seat-time as an indicator of learning.
* Personalized – Teachers can select microcredentials based on their own needs, in areas that need improvement or in areas of interest to develop new skills and knowledge.
* Job-embedded – Microcredentials can be targeted so they are directly relevant to the process of classroom teaching and learning.
* Available on demand – Teachers can generally choose the time, location, and order in which they develop competencies and produce evidence.
* Research-backed – Microcredentials can be designed to address specific skills based on research related to classroom efficacy.
* Evidence of both formal and informal training – Microcredentials can verify competency in areas where learning occurs both in a classroom and beyond. For example, an individual who develops skills as an area of personal interest or on the job can verify his or her competency with a microcredential.
* Agile – Microcredentials can be created quickly and easily to reflect changes in technology, course topics, learning standards, and research.
* Shareable – Evidence of earning microcredentials in the form of digital badges can be shared across a variety of platforms and are portable.

(Center for Teaching Quality and Digital Promise, 2016; Code.org Advocacy Coalition, 2019)

**Microcredentials as Professional Development for Teachers**

The *Every Student Succeeds Act* (Public Law 115-224) was signed into law in December 10, 2015, to replace the *No Child Left Behind Act*. There are a number of differences in the provisions of the two laws, including a revised definition of *professional development*. The federal definition of professional development typically drives the kind of professional development that school divisions and states provide.

The updated definition of professional development places more emphasis on growth and career enhancement. It states that professional development should consist of personalized, ongoing, job-embedded activities that are:

* Available to all school staff, including paraprofessionals;
* Part of broader school improvement plans;
* Collaborative and data-driven;
* Developed with educator input; and
* Regularly evaluated.

These activities should be designed to improve:

* Teachers’ knowledge of the academic subjects they teach;
* Their understanding of how students learn;
* Their ability to use effective instructional strategies; and
* Their classroom management skills.

Microcredentials can serve as a means to meet these requirements. They offer teachers a choice of topics that are most important to them, based on either their own professional needs or the needs of their students. The targeted nature of microcredential experiences allows teachers to focus on the very specific skill set or information set required to improve their knowledge or instruction. (Turk, 2016)

Microcredentials offer flexibility of learning anytime, anywhere, thus allowing teachers to participate at a time convenient to them. They are competency-based and value knowledge, skills, and abilities. The required learning experiences to earn them are personalized, and they are not based on “seat time.” Educators can take as little or as much time as needed to prepare their microcredential submissions. Additionally, because microcredentials are stackable, they can be combined to show deeper learning in a particular topic rather than one-time exposure. (Digital Promise, n.d.)

**Colleges and Universities Offering Educator Microcredentials**

A number of colleges and universities have developed or are developing microcredentials for educators. The following examples describe work being done in this area and do not constitute a comprehensive list of institutions issuing or developing microcredentials.

**Radford University** was the only university in Virginia identified in research for this report that is currently offering a program of online professional development specifically called *microcredentials.* Radford University’s Appalachian Support for Specialized Education Training (ASSET) program delivers short online professional development sessions for K-12 educators that are self-paced and competency-based. They are grounded in research-based practices from the Institute of Education Sciences *What Works Clearinghouse* practice guides. Participants who complete the modules can earn microcredentials, although these microcredentials do not currently meet the Open Badge standard. However, they can be considered for professional development points for licensure renewal, and ASSET learners also may receive graduate credit from Radford University if they complete at least five microcredentials. The ASSET microcredentials were created through a federal grant program, and participants from the Appalachian regions served incur no costs. (Wallace, 2019)

Matt Dunleavy, executive director of the Vinod Chachra IMPACT Lab, which administers the ASSET program at Radford, noted a distinction between microcredentials developed as a training model, such as those in the ASSET program, and those developed as a recognition model, which denote evidence of skill demonstration through submission and evaluation of evidence. (Dunleavy, 2019)

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**Old Dominion University**

Old Dominion University (ODU) has begun conceptual work on a model to offer microcredentials in Computer Science that would dovetail with teacher professional development efforts and be recorded through the ODU School of Continuing Education.  ODU’s Center for Educational Partnerships, supported by CodeVA and the University of Virginia, has submitted a grant proposal to the U.S. Department of Education seeking funding to support a project entitled Advancing Rural Computer Science (ARCS).  The ARCS project has four goals: (1) produce of a cadre of qualified teachers with computer science microcredentials who will build school-level capacity in computer science instruction; (2) develop accessible, field-tested instructional materials that integrate computer science curriculum standards into core elementary subject areas; (3) increase student readiness for pursuing rigorous STEM and computer science coursework among high need students; and (4) establish high-quality evidence that will support ARCS program sustainability and expansion. The project proposes to serve 18,000 K-5 students and 440 K-5 teachers in high-need and/or rural communities through a blended professional development model of face-to-face and web-assisted learning. Outcomes include the development of integrative computer science lessons and resources and would result in microcredentials for teachers who demonstrate mastery of this integrative approach.

The proposed stack of microcredentials included in the ARCS proposal involve: (1) Introduction to Computer Science Principles, Digital Impact, and Digital Citizenship; (2) Computing Systems, Networks and the Internet, and Cybersecurity; (3) Algorithms, Programming, Data and Analysis, and; (4) Lesson Integration, which will be a Performance Microcredential requiring materials submission and review.

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**James Madison University**

James Madison University is exploring the concept of microcredentials as part of its Content Teaching Academy. No details are currently available as the university is waiting to see how microcredentials might be used for teacher licensure and renewal based on legislation and discussions by the Virginia Board of Education during their work sessions.

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**The Friday Institute for Educational Innovation**, part of the College of Education at North Carolina State University, has developed 15 microcredentials related to learning differences in partnership with the Oak Foundation and Digital Promise. These microcredentials comprise three stacks (Working Memory, Executive Function, and Motivation) of five microcredentials each. Participants have the opportunity to earn a certificate of completion and can submit the certificate to their school district with a request for Continuing Education Units (CEUs). Granting of CEUs is subject to the policies and procedures of the state and local agencies. (Acree, 2016)

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**Loyola University Maryland** offers five microcredential stacks: Choosing and Using Tech Tools for Higher Level Learning, Project-Based Learning, Designing Your Curriculum for Personalized Learning, Leading Technology Professional Development, and Makerspaces. The stacked microcredentials are online and asynchronous, so there are no meetings or classes. The cost is $50 for each microcredential in a stack. Each microcredential is open enrollment, so there are no start or end dates. Successful completers receive a Continuing Education Certificate recognized by Loyola University Maryland and eligible for CEUs. The CEUs are evidence of professional study approved by Loyola University Maryland and are not equivalent to graduate or undergraduate credits. The acceptance of CEUs is dependent on the regulations of each jurisdiction or organization. (Loyola University Maryland, n.d.)

**Organizations in Virginia Offering Free Training for Teachers in Computer Science**

**Code Virginia** (CodeVA) is a 501(C)3 non-profit organization in Virginia that “partners with schools, parents, and communities to bring equitable computer science education to all of Virginia's students.” (CodeVA, n.d.) CodeVA offers free computer science training for public school teachers and districts to assist in implementing Virginia’s new computer science Standards of Learning. There are training programs for elementary, middle, and high school teachers. In 2017, CodeVA contributed to legislation that created a public-private partnership to train computer science teachers in Virginia. The initiative, housed at Northern Virginia Community College (NVCC), is called “CS for VA” and allows CodeVA and NVCC to coordinate and leverage the strength of corporate/nonprofit dollars with a state funding commitment. (Community Foundation for a Greater Richmond, n.d.)

Additionally, CodeVA receives funding from the Virginia General Assembly. In FY2019 and FY2020, the Budget Bill - HB1700/SB1100 - Direct Aid to Public Instruction – Item 135 provided $550,000 each year “for the development, marketing, and implementation of high-quality and effective computer science training and professional development activities for public school teachers . . .”

| HB1700 and SB1100**2019 Budget Bill – Item 135 – Direct Aid to Public Education***KK. 1. Out of this appropriation, $550,000 the first year and $550,000 the second year from the general fund is provided to CodeVA for the development, marketing, and implementation of high-quality and effective computer science training and professional development activities for public school teachers throughout the Commonwealth for the purpose of improving the computer science literacy of all public school students in the Commonwealth using the Computer Science Standards of Learning For Virginia Public Schools, which were reviewed and endorsed by the Virginia Board of Education in November 2017. The provided funds may be utilized* *for planning, preparing and materials needed for teacher training sessions provided during the biennium.**2. CodeVA shall report, no later than October 1, each year to the Chairmen of the House Education and Senate Education & Health Committees, Secretary of Education and the Superintendent of Public Instruction on its activities in the previous year to support computer science teacher training and curriculum development, including on collaboration with other stakeholders to avoid duplication of efforts.*<https://budget.lis.virginia.gov/item/2019/1/HB1700/reenrolled/1/135/> |
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These funds are administered to CodeVA through the Virginia Department of Education and may be utilized “for planning, preparing and materials needed for teacher training sessions provided during the biennium.”

**Microcredentials for Teacher Licensure and License Renewal in Other States**

A number of state education agencies are piloting or already using microcredentials in various ways to support educator professional development and license renewal. Some states award a specific number of professional development points or continuing education units for microcredentials, while others allow the local education agencies (LEAs) to consider

 microcredentials toward license renewal. Conversations with agency staff in several states noted the trend toward the use of the term “proficiency-based” or “competency-based” learning rather than specific use of the word “microcredentials” in addressing newly recognized forms of professional development for teachers.

Arizona is one state that allows competency-based training, including microcredentials, to substitute for college-credit course work for an add-on computer science endorsement.

**Arizona –** Arizona currently offers three add-on endorsements in computer science for teachers who already hold a valid Arizona Standard Professional Teaching Certificate. These include new endorsements in Computer Science, PreK-8 and Computer Science, 6-12, as well as a legacy endorsement in Computer Science, PreK-12. The legacy Computer Science, PreK-12 endorsement can be obtained only by completing college courses or through reciprocity from another state. The new Computer Science, PreK-8 and 6-12 endorsements can be obtained either by completing college courses or a noncollege-credit training program verified by the district superintendent or personnel director, or by an accredited college or university. The specific language states:

Arizona

Completion of a training program through an Arizona public local education agency . . . or an accredited college or university may substitute for the required semester hours of coursework. Fifteen clock hours of training, or the equivalent competency-based credential, is equivalent to one semester hour of college coursework.

*District/Charter School Training Option:* Completion of a training program through an Arizona public local education agency (district or charter school) or an accredited college or university may substitute for the required semester hours of coursework. Fifteen clock hours of training, or the equivalent competency-based credential, is equivalent to one semester hour of college coursework. Completion of training programs must be verified by a public-school superintendent or personnel director, or by the appropriate administrator of an accredited college or university.

(Arizona Department of Education, 2019)

Currently, competency-based learning may be used only for the two new computer science endorsements and a legacy gifted education endorsement, not in other content areas. When the new computer science provision was developed, there was already language in the regulations for the Gifted Education, PreK-12 endorsement that allowed school districts to provide in-service programs in gifted education that can substitute for up to six semester hours of gifted education courses:

Full Gifted Education Endorsement

. . . .

5.A.A-2.C Official Transcripts showing completion of 12 semester hours of courses in gifted education. District in-service programs in gifted education may be substituted for up to 6 semester hours of gifted education courses. Fifteen clock hours of in-service is equivalent to one semester hour. Practicum courses shall not be accepted towards this requirement. (Submit a letter on official letterhead from District Superintendent or Personnel Director to verity in-service training.)

(Arizona Department of Education, 2017)

Districts that opt to offer computer science training for teachers can provide it themselves or contract with a college, university, or other provider. Computer science endorsements earned in this manner are valid throughout the state of Arizona. The requirements for Arizona’s new Computer Science, PreK-8 and Computer Science, 6-12 endorsements are found in Appendix B.

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***The following are examples of states that award a defined number of professional development points for teacher license renewal based on microcredentials:***

**Rhode Island** – The Rhode Island Department of Education (RIDE) promulgated new Teacher Certification Regulations in December 2018 that require ongoing professional learning for certificate renewal effective August 31, 2020. Professional learning is measured in professional learning units, or PLUs. Using a phased-in approach, educators who wish to renew a teaching certificate must earn between 20 (for renewal in 2020) to 90 (for renewal in 2025 and beyond) PLUs for certificate renewal. Proficiency-based learning and microcredentials are specifically mentioned as acceptable activities to earn PLUs. Each acceptable activity earns an assigned number of PLUs. The regulations state that the value of a demonstrated competency earned via proficiency-based learning or microcredential should be set with the school district before the microcredential is started, and may range from 5 to 10 PLUs depending on the difficulty of the competency and the amount of time likely required to master it. (Rhode Island State Board of Education, 2018) A statement also is included that notes:

Rhode Island

. . . the value of a demonstrated competency earned via proficiency-based learning or microcredential should be set with the school district before the microcredential is started, and may range from 5 to 10 PLUs depending on the difficulty of the competency and the amount of time likely required to master it.

The Rhode Island Department of Education will continue to study research-based competency approaches to certification renewal and will make future recommendations that reduce the reliance on a number of units and emphasizes growth in professional practice.

Rhode Island currently has requirements for a career and technical education (CTE) certificate in computer technology. In order to be eligible for a full initial certificate, applicants must provide evidence of completion of an approved program in computer technology or completion of the required pedagogical and CTE content courses; pass the Praxis Principles of Learning and Teaching Grades 7-12 (5624) with a score of 157, hold at least an Associate’s Degree, have three years’ work experience, and pass the National Occupational Competency Testing Institute’s (NOCTI) in Computer Networking Fundamentals (5910). At this time, while there may be field interest in an endorsement for computer science in grade bands for elementary, middle, and high school, RIDE has not begun work in this area.

**Massachusetts** – The *License Renewal Guidelines for Massachusetts Educators* (Massachusetts Department of Elementary and Secondary Education, 2017) permit microcredentials to earn Professional Development Points (PDPs) as follows:

Massachusetts

Two badges = 10 Professional Development Points as long as the badges are in a related topic area. The digital badge in the form of a hard copy is required as documentation.

* Two badges = 10 PDPs as long as the badges are in a related topic area. The digital badge in the form of a hard copy is required as documentation.
* One badge bundled with other related professional development activities may amount to a minimum of 10 PDPs. The digital badge in the form of a hard copy in addition to certificates of completion, professional development transcript, or a My Learning Plan, is required as documentation.

The *Guidelines* also note:

When counting one badge toward PDPs, the actual number of hours may vary. Microcredential topics are diverse. Not all microcredentials are created equally. You should check with the provider to see what the value may be as some badges may be equal to 2 PDPs or 5 PDPs depending on the time involved.

**Tennessee** – The Tennessee Department of Education (TDOE) launched the Tennessee Microcredential Pilot in 2016-2017 to gather feedback and explore avenues for providing more personalized learning for educators across the state. The Department’s strategic plan identified educator support as one of five priority areas. A focus group of 58 teachers advised on the project, and 17 teachers agreed to participate virtually by earning microcredentials independently and providing feedback on the experience. The pilot teachers were asked to earn up to three microcredentials from a curated set of 14 aligned to the indicators of questioning, thinking, and problem solving, which had been identified as the most common areas needed for growth by Tennessee teachers as a result of the TEAM (Tennessee Educator Acceleration Model), Tennessee’s evaluation model. The pilot captured teacher perceptions about microcredentials as a form of personalized learning, including details about the general quality, rigor, and relevance of the microcredentials and the process to earn them.

In Year Two of the pilot, the TDOE selected school districts to participate in one of two pathways: Teacher Leader Pathway or TEAM-Aligned Pathway. Each selected district had to invite a minimum of ten teacher to participate, provide release time and cover the cost of substitutes for them to attend three required meetings, and provide five professional development points for each earned microcredential to stand in lieu of some portion of five district professional development days. (Tennessee Department of Education, n.d.)

Tennessee

Educators can receive 6 professional development points (PDPs) for one microcredential as long as the PDPs are earned through a state-approved [microcredentials](http://team-tn.org/professional-learning/micro-credentials/) provider (i.e., Digital Promise, Teaching Matters). Microcredentials documentation must be issued by the state-approved microcredentials provider.

Educators can receive 6 professional development points (PDPs) for one microcredential as long as the PDPs are earned through a state-approved [microcredentials](http://team-tn.org/professional-learning/micro-credentials/) provider (i.e., Digital Promise, Teaching Matters). Microcredentials documentation must be issued by the state-approved microcredentials provider. (Tennessee Department of Education, n.d.)

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***The following are examples of states that have policies in place that allow local education agencies (LEAs) to accept microcredentials toward license renewal but do not designate a specific point value for microcredentials:***

**Kentucky –** New teachers in Kentucky who complete a four-year program initially earn Rank III licensure status and must complete ongoing education within a set timeframe to advance to Rank II. The highest rank, Rank I, is earned by completing an approved master’s degree and 30 semester hours of additional graduate work or continuing education. Teachers can also earn Rank I through achieving National Board for Professional Teaching Standards (NBPTS) certification. (Teacher Certification Degrees, 2019)

In 2017, the Kentucky General Assembly passed Senate Bill 117, requiring the Kentucky Education Professional Standards Board (EPSB) to “develop standards for continuing education related to maintaining a certificate, including university courses, an advanced degree, or a combination of ~~[university courses,]~~ field-based experiences, individual research, and approved professional development.” (Kentucky General Assembly, 2017)

This legislation opened an avenue through which certified teachers may renew certificates or achieve advanced ranks other than through a university-based program. The EPSB appointed a committee to review options to achieve Kentucky’s second tier of professional licensure, Rank II. Microcredentialing for advanced ranks is part of that discussion.

Kentucky

Certified teachers may renew certificates or achieve advanced ranks other than through a university-based program. The EPSB appointed a committee to review options to achieve Kentucky’s second tier of professional licensure known as Rank II. Microcredentialing for advanced ranks is part of that discussion.

The Kentucky Valley Educational Cooperative (KVEC), one of eight educational service agencies in Kentucky, has created several stacks of microcredentials focused on**:** Collaborative Coaching, Assessment Literacy, Facilitating Online Computer Science Learning, Framing a Problem of Practice, Building Relationships, and Understanding Types of Poverty.  Three institutions in California (Brandman University, Fresno Pacific University, and Portland State University) have agreed to use the Collaborative Coaching microcredential developed by KVEC for graduate credits within their programs. (Lockhart, 2017; Kentucky Valley Educational Cooperative, n.d.)

Several districts and service centers in Kentucky plan to pilot the use of microcredentials for Rank II licensure in 2019-2020, including microcredentials for computer science, artificial intelligence, and robotics. (Code.org Advocacy Coalition, 2019)

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**North Carolina** – The North Carolina Department of Public Instruction (DPI) has convened a Microcredentialing and State Policy Workgroup consisting of DPI staff, district stakeholders, and partner organizations to inform and define a framework for using microcredentials to transform professional learning for educators. (North Carolina Department of Public Instruction, n.d.)

North Carolina

LEAs may develop an alternative license renewal plan that is competency-based and results-oriented. . . . The plan may waive specific hour requirements that a license employee must meet and focus instead on knowledge and skill acquired by participants.

The DPI notes that the state already has policies in place that support the use of competency-based professional development:

LEAs may develop an alternative license renewal plan that is competency-based and results-oriented. The plan must describe the connection among professional development, the school improvement plan, and the individual’s license area or job responsibilities through processes such as peer review and annual evaluation. The plan may waive specific hour requirements that a licensed employee must meet and focus instead on knowledge and skill acquired by participants. The plan must align with the expectations of the North Carolina Professional Teaching Standards and include outcome measures. It must be submitted to the Department for review in advance of its implementation. (North Carolina State Board of Education, n.d.)

**South Carolina** – The Collective Leadership Initiative within the Office of Educator Effectiveness and Leadership Development at the South Carolina Department of Education (SCDE) is conducting a microcredential pilot in several areas with the assistance of the Regional Educational Laboratory Program (REL) at Florida State University and the Center for Teaching Quality. Microcredential stacks include Collective Leadership, Basic Performance Assessment, and Advanced Performance Assessment. School districts may recognize participation in the microcredential pilot for professional development credit. (South Carolina Department of Education, 2018)

South Carolina

School districts may recognize participation in the microcredential pilot for professional development credit.

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**North Dakota** – Members of North Dakota United (NDU), the union for teacher and public employees in North Dakota and an affiliate of the National Education Association, have access to the National Education Association’s microcredential program. The NEA microcredentials are available to all educators**,** regardless of their membership status with NDU. The cost to enroll for each microcredential is $50. NDU members who would like to earn one college credit through the University of North Dakota for each microcredential are charged $75. Non-members pay $250 per credit, which includes the cost of credit, online support, and a small administrative fee. These credits may be considered for licensure renewal. (North Dakota United, 2018)

North Dakota

NDU members who would like to earn one college credit through the University of North Dakota for each microcredential are charged $75. Non-members pay $250 per credit, which includes the cost of credit, online support, and a small administrative fee. These credits may be considered for licensure renewal.

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**Washington** – The Washington Professional Educator Standards Board (PESB) offered up to twenty $18,000 grants to Washington State school districts, district consortiums, and clock hour providers/higher education institutions (partnered with a district) that were interested in piloting competency-based microcredentials. The microcredential implementation contractor was required to provide support in terms of communication materials, registering identified participants, and support of participants on the online platform. Grant applicants had to select a topic from among Social Emotional Learning (SEL), Elementary Computer Science (ECS) or Recruiting Washington Teachers (RWT). Funds may be used for: educator release time; stipends for the educator participants, coordinator, facilitators, and/or assessors; expenses to work on pilot-related efforts/programming; and/or travel expenses to attend a microcredential state-wide kick-off meeting. (State of Washington Professional Educator Standards Board, 2018)

Washington

School districts may recognize participation in the microcredential pilot for up to 20 clock hours of continuing education credit.

Under this program, Washington’s Center for Strengthening the Teaching Profession developed three microcredentials and professional development modules for the Recruiting Washington Teachers (RWT) curriculum. Pilot teachers worked to earn a microcredential in one of three areas: Developing Recruiting Washington Teacher Systems; Pathways to Becoming a Teacher; or Leveraging Recruiting Washington Teacher Curriculum. Participants received 20 clock hours of continuing education credit for participating in the pilot. (Center for Strengthening the Teaching Profession, 2019)

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**Considerations in Accepting Microcredentials for Teacher Licensure, Renewal, and Professional Development**

In an August 2018 report, *Rethinking Licensure: Promoting Professional Learning Through Teacher Licensure Renewal Policies,* Tooley and White noted the increased interest in incorporating educator microcredentials into the professional development and potential licensure renewal for teachers. They observed the current lack of quality control in developing and implementing microcredentials to ensure that the earner of a particular microcredential has indeed demonstrated competency in that skill. Since any entity can become a microcredential issuer, there is currently inconsistency in the quality and quantity of evidence required to demonstrate mastery. The authors recommend that states exert caution in developing policies related to acceptance of microcredentials for teacher licensure and/or relicensure.

States should ensure that the entities they allow to issue microcredentials (MCs) are assessing the skills MCs are intended to verify in a consistent, high-quality manner. States can create the capacity to do so themselves, or accept only microcredentials that have already been vetted by an independent, unbiased authorizer, like Digital Promise.

Additionally, states should allow teachers to count microcredentials toward license renewal only when MCs are clearly tied to areas of student need or teacher professional growth need – otherwise teachers could attain MCs in areas they have already mastered, undermining the relicensure goal of continuing professional growth. As states move toward systems that require teachers to develop and fulfill personalized growth plans as part of the recertification process, they could also employ MCs to help assess whether teachers have mastered skills they were endeavoring to develop. . . . States will need to think deeply about the types of content and “grain-size” of microcredentials that would be appropriate to offer toward recertification . . . (i.e., just how “micro” should a “microcredential” be?)

 (Tooley & White, 2018)

A 2019 report by the Code.org Advocacy Coalition offers notes on implementation concerns specific to the creation of microcredentials in the field of computer science education:

Issuers and recognizers should consider current micro-credential implementation challenges. First, the research base around the use and effects of microcredentials, including the effect on student outcomes, is currently small but continues to develop. Depending on the topic of a microcredential, a lack of research makes it challenging to delineate the core competencies in a discipline and develop valid and reliable measures of competency. Second, it is difficult to compare the value of different microcredentials from different issuers, even if they address the same topic, because microcredentials can be awarded based on a wide range of artifacts. Recognizers may find it challenging to evaluate the quality of issuers’ microcredentials. Lastly, evaluating microcredential submissions can be time-consuming. The amount of time can vary based on the number of submissions, which puts challenges on managing the number and availability of staff to review them.

(Code.org Advocacy Coalition, 2019)

**Virginia’s Workgroup on Microcredentials for Teachers**

A workgroup on microcredentials convened on behalf of the Advisory Board on Teacher Education and Licensure (ABTEL) in Henrico County, Virginia, on September 9, 2019. Subsequently, ABTEL met on September 23, 2019, to review the report and make recommendations to the Board of Education. Members of the workgroup included teachers, school and central office administrators, Department of Education staff, and representatives from professional organizations, higher education, and CodeVA, an organization that provides computer science training to teachers in Virginia. Presentations included:

* A review of research on microcredentials and their use in K-12 education;
* An overview of Radford University’s Appalachian Support for Specialized Education Training (ASSET) program, which delivers self-paced and competency-based online professional development sessions for K-12 educators that may result in microcredentials; and
* Information about a partnership currently under development between Old Dominion University and CodeVA to offer microcredentials to K-12 teachers.

Following the informational presentations, members of the workgroup engaged in a robust discussion about the benefits of microcredentials in providing professional development for K-12 educators and the potential for use in teacher licensure and renewal. Given the emerging nature of microcredentials for teachers in K-12 education, concerns also were expressed about the large number of microcredential issuers, the broad number of topics covered, and the difficulty in evaluating the content covered, the quality of the evidence teachers must submit, and the rigor of rubrics and evaluators in scoring that evidence.

A major consideration is how the concept of microcredentials, in their current unregulated state, would comport with Virginia’s present system of teacher licensure. Some have expressed concerns with multiple issuers designing and offering hundreds of microcredentials, with no standard criteria for content, research-base, rigor, or scoring. The challenge at hand is how to balance Virginia’s specific teacher license content requirements that are currently demonstrated by completing courses within an approved teacher preparation program or by passing an approved Praxis content exam with the array of options in the world of microcredentials.

***Benefits of Microcredentials for Teachers***

Members of the workgroup on microcredentials concurred with many of the benefits of microcredentials for teachers that were outlined in the review of research. The benefits discussed include the following:

* Microcredentials offer an opportunity to personalize professional development for teachers by targeting specific areas of interest or need.
* Microcredentials would allow teachers to demonstrate expertise in areas that extend beyond their area of licensure or deeper into their area of teaching. Demonstration of such knowledge and skills may help identify new courses that could be offered to students based on a teacher’s area of interest or expertise.
* Microcredentials can help strengthen specific areas of teachers’ content knowledge or provide new information in evolving areas. Examples include:
	+ Virginia’s 2017 Computer Science Standards of Learning require instruction in computer science and computational thinking, with some concepts introduced in the elementary grades. Teachers who hold PreK-3, PreK-6 and Middle Education 6-8 teaching licenses may not have a background in these principles. Microcredentials may be one way to support them in developing and/or improving their knowledge of computer science principles.
	+ At the high school level, where there is a shortage of computer science teachers, individuals licensed to teach mathematics often have met the coursework requirements for an add-on endorsement in computer science, but they may need support in some areas to feel comfortable providing instruction in this area. Microcredentials may be an effective way to refresh topics that would enable them to teach a computer science course.
* Microcredentials could help career switchers who have sufficient content knowledge in their area of licensure improve their skills in pedagogy and classroom management.
* Microcredentials could help teachers develop leadership skills, preparing them for opportunities to assume additional educational leadership responsibilities where they would not have to leave the classroom.
* Microcredentials could help teachers bridge areas of endorsement where they need to fill in, refresh, or update knowledge gaps.

***Challenges of Implementing Microcredentials for Teacher Licensure***

While there were acknowledged opportunities for the use of microcredentials as professional development for teachers, members of the workgroup on microcredentials identified several challenges to implementing microcredentials for use in teacher licensure and renewal. They revolve largely around two issues:

* There are numerous microcredentials available to educators, but there is no standard to evaluate the quality of the content and rigor of microcredentials for teachers. Numerous entities have developed microcredentials, often addressing the same topics but with varying requirements.
* To date, no colleges, universities, or organizations have been identified that have developed microcredentials that cover all the breadth of content required for teaching endorsements in Virginia.

***Thoughts on Microcredential Implementation***

Members of the workgroup had additional thoughts on the use of microcredentials by educators:

* Microcredentials provide an interesting and emerging opportunity for teacher preparation and professional development, however, they do not easily reconcile with the current teacher licensing process in most states, including Virginia. However, microcredentials can be used to earn professional development points toward teacher license renewal in Virginia, which should be made clear to teachers and school division officials. Additional work needs to be done in reviewing microcredential opportunities for teacher licensure in Virginia, especially within the broader scope of competency-based options in general and how they may apply to teacher licensure.
* In order for microcredentials to be successful, teachers and administrators must see the value in pursuing them and not just view them as another add-on requirement for teachers. Teachers must perceive that the work required to earn microcredentials can be completed with reasonable time and effort and sufficient incentives are provided to do so.
* Microcredentials can provide a way for teachers to enhance their résumés and for schools to promote the qualifications of their staff. Additionally, they offer an opportunity for paraprofessionals and other school personnel to participate in valuable professional development opportunities that are not always available to all staff members.

***Recommendations***

The discussion of the workgroup on microcredentials produced recommendations related to the development and use of microcredentials. The areas of recommendation address both existing policies and future considerations.

The Advisory Board on Teacher Education and Licensure met on September 23, 2019, to review the workgroup’s recommendations. The Advisory Board unanimously approved the workgroups recommendations, with some minor technical edits. The following recommendations are submitted to the Board of Education for consideration:

1. **Clarify Virginia license renewal language about the use of microcredentials for professional development points.**

There are provisions in the *Virginia Licensure Renewal Manual* (Virginia Department of Education, 2019) whereby a teacher can use microcredentials to earn professional development points toward license renewal. Option 8, Professional Development Activities, encourages local employing education agencies “to design staff development activities . . . to enhance professional performance and advance the goals of the employing local agency. Noncollege credit activities previously sponsored by educational agencies are now included in several of the options, especially Option 8.” (Virginia Department of Education, 2019)

Effective July 1, 2018, renewable teaching licenses are issued for 10 years. Prior to that date, they were issued for five years. Individuals who currently hold a five-year license must earn 180 professional development points for license renewal, with one clock/contact hour counting as one point. Professional development activities must meet the following criteria to be used for license renewal:

1. Must be a **minimum of five hours per activity**. The five hours do not have to be consecutive
2. Must have prior approval from the chief executive officer or designee if the license holder is employed in a Virginia educational agency. Prior approval for employing educational agency professional development activity is a commitment that professional development points will be awarded for the activity. If job-related leave is being requested, the license holder must follow the guidelines in the personnel handbook of the employing agency.

**Suggested Action:**

Add language based on the Code of Virginia (*§* [***22.1-299.7***](http://law.lis.virginia.gov/vacode/22.1-299.7)*. Microcredential program; certain STEM subjects.)* to the *Virginia Licensure Renewal Manual* to make it clear that microcredentials can be used to earn professional development points for license renewal.

1. **Consider microcredentials as a component of an alternate route to licensure or a teacher preparation program submitted to the Virginia Board of Education for approval.**

The Virginia Board of Education must approve all teacher preparation programs. Additionally, the 2019 Virginia General Assembly approved House Bill 2486 that required the Board of Education to develop guidelines that establish a process to permit a school board or any organization sponsored by a school board to petition the Board for approval of an alternate route to licensure that may be used to meet the requirements for a provisional or renewable license or any endorsement.

**Suggested Action:**

Consider including microcredentials in programs seeking approval if they address the content and expertise required in the approved program competencies set forth in the Board of Education’s regulations.

1. **Allow microcredentials, regardless of delivery modality to be considered for use by educators.**

The language approved by the 2019 Virginia General Assembly in Senate Bill 1419 and House Bill 2217 appears to require that microcredentials for teachers may be offered only in person or in a blended format of in-person and online instruction.

*§* [***22.1-299.7***](http://law.lis.virginia.gov/vacode/22.1-299.7)*. Microcredential program; certain STEM subjects.*

. . . .*C. Any course offered through any microcredential program established pursuant to subsection A shall be offered in-person or in a blended format of in-person and online instruction.*

However, many microcredential are offered solely online, and the language in the *Code of Virginia* should reflect this provision.

**Suggested Action:**

Add language to make it clear that microcredentials can include completely online instruction in addition to in-person or in a blended format.

1. **Allow the opportunity to pilot the development, use, and evaluation of microcredentials for Virginia educators in accordance with Board of Education guidelines.**

Many questions about the use of microcredentials for teachers exist, especially given the emerging nature of their development and use. One or more microcredential pilots, especially conducted by colleges, universities, or organizations in Virginia that have recognized success in teacher preparation and professional development, would help to respond to some of these questions including the interest of teachers in pursuing microcredentials, their effectiveness in providing professional development in areas of need, and their potential role in teacher licensure and renewal. Such work also may provide insight into how higher education views the use of microcredentials as an element of programs, which may assist with the calibration of content and/or skills addressed by microcredentials with the current teacher licensure requirements in Virginia.

**Suggested Action:**

Allow a collaboration of stakeholders (Department of Education/State Council of Higher Education for Virginia (SCHEV)/colleges and universities/school divisions/professional organizations) to pilot the development, use, and evaluation of microcredentials for Virginia educators.

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**Customized Learning Paths Microcredential**

(Institute for Personalized Learning, ND)

Practitioner co-creates a unique learning path with students based on their individual readiness, strengths, needs, and interest.

**Key Method**

The practitioner guides students to utilize self-reflection and teacher feedback when developing their unique learning paths. Students self-reflect on academic readiness, learning preferences, and hobbies/interests, and use a framework of questions to create their paths toward learning standards/outcomes.

**Method Components**

**Customized Learning Paths and Personalized Learning**

Customized Learning Paths are the unique road maps developed with each student toward the learning objectives they need to master. Learning paths typically are jointly developed by the educator and the learner. Learning paths are more than a course selection guide. They should cover the specific learning objectives aligned with the standards that a learner has yet to master and the way he or she will go about gaining and then demonstrating mastery. Progress along the path leads to college, career, and life readiness.

Customized Learning Paths allow learners to co-design their learning with educators rather than simply comply with the directions and expectations of adults. This component is designed to help learners take ownership of their learning, find greater meaning and purpose, and become increasingly independent in their learning skills.

The process of co-creating learning paths helps students develop key life skills. The discipline and organization that learners employ in planning their learning will serve them well long after they leave school to pursue lifelong endeavors.

**Components of Creating Learning Paths**

* Step 1: Develop personal learning goals.
The educator and learner work to develop short-term, intermediate, and long-term personal learning goals. Expected outcomes must be specific and aligned to intermediate and long-term goals so that the learner can see a clear path forward.
* Step 2: Select activities and resources to support learning.
Both the educator and the learner suggest activities and resources to use in meeting the student’s personal learning goals. Educators present what they can offer (e.g., strategic instructional seminars, learning activities, useful resources). Learners also suggest what they might contribute to the plan (e.g., collaborating with classmates on specific tasks, locating apps to support learning).
* Step 3: Identify progress markers.
The educator and learner identify markers that show progress toward meeting each learning goal. Markers are based on formative assessment data and help the learner focus on the learning progress rather than simply what activities and tasks he or she is doing. Progress markers also allow the educator and learner to determine whether changes in the learning path may be necessary to ensure the accomplishment of each goal.
* Step 4: Define how the learning will be demonstrated.
The final step in constructing Customized Learning Paths is defining how learning will be demonstrated. Early on, learners are often inclined to defer to educators on assessment matters, but as they commit to their learning goals, they are likely to identify learning demonstrations and other representations that are even more rigorous than those the educators might choose.

**Suggested Framework**

Below is a framework that can be utilized in planning for co-creation of the learning path with students:

**Where am I now…**

* Proficiency-Based Progress: (How might students self-reflect on their learning outcome?)

**What I’m going to learn…**

* Personalized Learning Goal: (How could students set a goal for the learning outcome?)

**How I’m going to learn it…**

* Customized Learning Path: (What learning opportunities or choices could the students choose from?)

**How I’m going to show what I’ve learned…**

* Proficiency-Based Progress (How can students have choices in how and when they show proficiency?)

**Research & Resources**

**Supporting Rationale and Research**

* Redding, S. (2013). Getting personal: The promise of personalized learning. Handbook on innovations in learning, 113-130.
<http://www.centeril.org/handbook/resources/fullchapter/Getting_Personal_SA.pdf>
* Toshalis, E., & Nakkula, M. J. (2012). Motivation, engagement, and student voice. The Education Digest, 78(1), 29.
<http://studentsatthecenterhub.org/resource/motivation-engagement-and-student-voice/>

**Resources**

* Customized Learning Paths Overview Video - <https://www.youtube.com/watch?v=zow3wqPyd5s>
* 5 Shifts to Learner Roles in a Personalized Learning Environment - <http://bit.ly/2on4imc>
* Personalized Learning Plan Template - <http://bit.ly/2oLmvME>

**Score Description**

*The items in the following section detail what must be submitted for evaluation. To earn the micro-credential, you must receive a passing evaluation for Parts 1, 3, and 4 and a “Yes” for Part 2.*

**Submission & Evaluation**

**Part 1: Overview**

**200-word limit**

Process: Describe the process you went through in incorporating Customized Learning Paths into your learning experience.

*Assessment Rubric*

**Passing**

Response includes information on how learners had input into the construction of the learning path. Paths were aligned with intended learning outcomes, formative assessments provided timely and specific information, and learners and practitioners had responsibility in tracking progress and monitoring learning paths and mastery.

**Not Passing**

Submission does not meet passing requirements.

**Part 2: Work Examples / Artifacts**

To earn this micro-credential, please submit the following:

* Two examples of customized learning paths that demonstrate how learning was calibrated to an appropriate level of challenge and aligned with intended learning outcomes.
* An artifact that demonstrates a shared responsibility in one or more of the following: tracking progress, monitoring the learning path, and/or demonstrating mastery.
* An artifact that demonstrates ongoing conversations reflecting on what informs progress and the next steps.

*Assessment Rubric*

**“Yes”**

Artifacts demonstrate an understanding that each learner follows a unique path based on his or her individual readiness, strengths, needs, and interests:

* + Submitted examples of customized learning paths demonstrate how learning was calibrated to an appropriate level of challenge and aligned with intended learning outcomes.
	+ Artifact demonstrates a shared responsibility in one or more of the following: tracking progress, monitoring learning path, and/or demonstrating mastery.
	+ Artifact demonstrates that learners and educators continually engage in reflection and conversations that inform their progress and next steps.
	+ In the submitted student reflection, the student described his or her role in constructing his or her learning path based on one or more of the following: readiness, strengths, interests, and/or learning needs.

**“Not Yet”**

Artifacts do not demonstrate an understanding that each learner follows a unique path based on his or her individual readiness, strengths, needs, and interests due to one or more of the following:

* + Submitted examples of customized learning paths did not demonstrate how learning was calibrated to an appropriate level of challenge and aligned with intended learning outcomes.
	+ Artifact did not demonstrate a shared responsibility in one or more of the following: tracking progress, monitoring learning path, and/or demonstrating mastery.
	+ Artifact did not demonstrate that learners and educators continually engage in reflections and conversations that inform their progress and next steps.
	+ In the submitted student reflection, the student did not describe his or her role in constructing the learning path based on one or more of the following: readiness, strengths, interests, and/or learning needs.

**Part 3: Student Reflection**

Submit reflections from two students that describe their role in constructing their learning paths based on one or more of the following: their readiness, strengths, interests, and/or learning needs.

*Assessment Rubric*

**Passing**

Student responses includes evidence of students constructing their learning path based on one or more of the following: their readiness, strengths, interests and/or learning needs.

**Not Passing**

Submission does not meet passing requirements.

**Part 4: Practitioner Reflection**

Provide a written reflection on at least two of the following:

* What was successful about utilizing Customized Learning Paths?
* What were the challenges you came across?
* What are four to five learner “look fors” you would see reflected in a learning environment because of utilizing Customized Learning Paths?
* What was the role of the learner in utilizing Customized Learning Paths? What was your role (the role of the educator) in utilizing Customized Learning Paths?
* What will you refine as you move forward with utilizing Customized Learning Paths?

*Assessment Rubric*

**Passing**

Reflection clearly discusses at least two of the following: success and challenges, four to five learner “look fors,” the role of the learners and the role of the educator, and plans for refining the Customized Learning Paths.

**Not Passing**

Submission does not meet passing requirements.

**Issuing Organization**

**Institute for Personalized Learning**

The Institute for Personalized Learning is a division of Cooperative Educational Service Agency #1, a provider of high-quality, cost-effective programs and services for K-12 districts in Southeastern Wisconsin. The intent and commitment of the Institute is to build on the work that was started with the CESA #1 Call to Action and the white paper, Transforming Public Education: A Regional Call to Action. Our vision is a world where every learner has the capacity and drive to learn for life.

**Arizona Department of Education**

**Requirements for the Computer Science, PreK-8 - Endorsement**

1. **Application:** Submission of a completed [Application for Certification](https://cms.azed.gov/home/GetDocumentFile?id=57a4d90caadebe130c51857a) and the appropriate fee (see Application for Certification).
2. **AZDPS IVP fingerprint clearance card:** A photocopy of your valid [Arizona Department of Public Safety](http://www.azed.gov/educator-certification/fingerprint-clearance-card-ivp/)  [Identity Verified Prints (IVP)](http://www.azed.gov/educator-certification/fingerprint-clearance-card-ivp/) fingerprint clearance card.
3. **Prerequisite Certificate:** A valid Arizona Standard Professional Early Childhood, Elementary, Middle Grades, Secondary, Special Education, or PreK-12 Teaching certificate;
4. **Option A or B**

**Option A: Computer Science Coursework/Trainings.** Both of the following (A-1 **and** A-2) are required:

A-1. Three semester hours in foundations for teaching computer science which addresses the following topics:

* + Introduction to computer science;
	+ Inclusive recruitment, retention, and pedagogical strategies for computer science education;
	+ Computational thinking;
	+ Instructional planning based on the Arizona state standards for computer science, or comparable computer science.

A-2. Six semester hours in computer science to include the following:

* + Three semester hours in teaching and learning programming for educators; and
	+ Three hours in a computer science elective which may include, but is not limited to, physical computing or mobile computing.
* ***District/Charter School Training Option:*** Completion of a training program through an Arizona public local education agency (district or charter school) or an accredited college or university may substitute for the required semester hours of coursework. Fifteen clock hours of training, or the equivalent competency- based credential, is equivalent to one semester hour of college coursework. Completion of training programs must be verified by a public-school superintendent or personnel director, or by the appropriate administrator of an accredited college or university.

**Option B: Out-of-State Computer Science, PreK-8 Certificate or Endorsement**

B-1. The applicant holds a valid, comparable Computer Science, PreK-8 certificate or endorsement from another state and is in good standing in that other state.

**Arizona Department of Education**

**Requirements for the Computer Science, 6-12 – Endorsement**

1. **Application:** Submission of a completed [Application for Certification](https://cms.azed.gov/home/GetDocumentFile?id=57a4d90caadebe130c51857a) and the appropriate fee (see Application for Certification).
2. **AZDPS IVP fingerprint clearance card:** A photocopy of your valid [Arizona Department of Public Safety](http://www.azed.gov/educator-certification/fingerprint-clearance-card-ivp/)  [Identity Verified Prints (IVP)](http://www.azed.gov/educator-certification/fingerprint-clearance-card-ivp/) fingerprint clearance card.
3. **Prerequisite Certificate:** A valid Arizona Standard Professional Elementary, Middle Grades, Secondary, Hearing Impaired, Visually Impaired, Mild/Moderate Disabilities, Moderate/Severe Disabilities, or PreK-12 Teaching certificate;
4. **Option A or B**

**Option A: Computer Science Coursework/Trainings.** Both of the following (A-1 **and** A-2) are required:

A-1. Three semester hours in foundations for teaching computer science which addresses the following topics:

* + Introduction to computer science;
	+ Inclusive recruitment, retention, and pedagogical strategies for computer science education;
	+ Computational thinking;
	+ Instructional planning based on the Arizona state standards for computer science, or comparable computer science.

A-2. Nine semester hours in computer science to include the following:

* + Three semester hours in teaching and learning programming for educators; and
	+ Six semester hours in computer science electives which may include, but is not limited to, computer programming, cybersecurity, algorithms and data structures, operating systems, artificial intelligence, machine learning, database development and management, computer networks, and data mining and analytics.
* ***District/Charter School Training Option:*** Completion of a training program through an Arizona public local education agency (district or charter school) or an accredited college or university may substitute for the required semester hours of coursework. Fifteen clock hours of training, or the equivalent competency- based credential, is equivalent to one semester hour of college coursework. Completion of training programs must be verified by a public-school superintendent or personnel director, or by the appropriate administrator of an accredited college or university.

**Option B: Out-of-State Computer Science, Grades 6-12 Certificate or Endorsement**

B-1. The applicant holds a valid, comparable Computer Science, Grades 6-12 certificate or endorsement from another state and is in good standing in that other state.

***MEMBERS***

***WORKGROUP ON MICROCREDENTIALS***

|  |  |
| --- | --- |
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