SKILL BUILDING

THE EMERGING MICRO-CREDENTIAL MOVEMENT IN K-12 EDUCATION

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Foreword

Micro-credentials—qualifications awarded to students and workers who complete short, often skills-based courses—have spread rapidly in higher education and industry over the past decade. Upwards of two-thirds of colleges and community colleges now include micro-credentials among their course offerings.

Increasingly, K-12 policymakers and practitioners are exploring the concept as well, interested as they are in forging new pathways through high school and into a wider range of promising post-secondary opportunities.

This report, researched and written by FutureEd Senior Fellow Anne Kim, is the first comprehensive analysis of the nascent micro-credential movement in K-12 education. It explores the movement's origins, its performance to date, and its potential to provide the meaningful new pathways for students in K-12 education that a growing number of educators and education advocates are seeking.

Our research revealed that some early micro-credential programs have produced significant improvements in student interest and achievement. But we also found ample evidence to suggest that scaling high-quality micro-credentialing in K-12 education is going to be challenging. Proponents are going to have to overcome uneven quality among micro-credential programs, a dearth of accountability, hesitancy from both students and teachers to embrace the model, and the lack of rigorous evidence to date to support the credentials' value.

FutureEd Senior Policy Analyst Bella DiMarco managed the production of the report and Molly Breen and Merry Alderman contributed their editorial expertise to the project.

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Thomas Toch
Director, FutureEd

Over the last decade, the availability of micro-credentials—qualifications awarded to students and workers who complete short, often skills-based courses—has exploded in higher education and industry. In 2022, national higher education platforms like Coursera, edX and Udacity offered the credentials in 1,600 different online subjects, more than double the number of topic areas than the year before.[1] Hundreds of smaller institutions offered countless more. Fully 58 percent of colleges and community colleges now include micro-credentials among their course offerings, Coursera reported in 2024.[2]

Students earn micro-credentials, badges, and other alternatives to traditional diplomas and degrees by completing courses as short as a few weeks, or even a few hours. With their short, focused formats, the new credentials attract wide audiences and can support almost any topic. EdX offers classes in everything from data analytics and accounting to graphic design and the basics of blockchain technology.[3] Coursera offers digital "certificates" for one-to-two-hour courses ranging from public speaking to designing newsletters and building a chatbot with ChatGPT.[4] Micro-credentials can help employers fill gaps in workers' skills quickly and inexpensively. And they allow education institutions to quickly design programs that meet student and industry demand, often partnering with employers to tailor their offerings.[5]

The surge in micro-credentialing within higher education and among employers is spurring similar interest among K-12 educators. While short-form credentials have long been available to teachers to hone their skills—the National Education Association currently offers 175 such awards—schools have recently begun offering them to students as well.[6] School districts nationwide are launching or expanding micro-credentialing efforts, primarily in three areas: career and technical education, including industry-recognized credentials; job readiness and "durable" skills such as communication and collaboration; and academic content, such as math.

This report on the nascent micro-credential movement in K-12 education explores the movement's origins, its performance to date, and its potential to present meaningful new pathways for students in K-12 education. Because this field has not yet developed a rigorous research base, the report draws primarily on comprehensive interviews with nearly two dozen stakeholders nationwide. From there, it distills these early lessons from the movement's pioneers and recommends steps for policymakers to maximize micro-credentialing's potential.

Our research clearly shows that micro-credentials offer promising new routes to post-secondary opportunities. Some early programs have produced significant improvements in student interest and

achievement, especially among students deemed "at risk." Supporters of "competency-based" education see micro-credentials as a mechanism for shifting traditional education's focus from the amount of time students spend in the classroom to the knowledge and skills they acquire; advocates suggest they may also promote a more engaging brand of teaching and learning. But the evidence is equally clear that significant hurdles exist to scaling high-quality micro-credentialing in K-12 education. These hurdles include uneven program quality, a dearth of accountability, hesitancy from both students and teachers to embrace the model, and the lack of rigorous evidence to date to support the credentials' value. Whether micro-credentialing achieves its full potential rests on its champions' ability to overcome these obstacles.

Micro-Credentialing and the Rise of "Skills"

The emergence of micro-credentialing over the last decade coincides with the ascendancy of a "skills" movement in education animated by growing disillusionment over "seat time" as a gauge of learning and diminishing perceptions of the value of a college degree.

Many employers, for instance, have expressed dissatisfaction with the capabilities of college graduates, especially when it comes to critical thinking, problem-solving, and other "durable skills." In a 2021 survey from the Association of American Colleges and Universities, just six out of ten employers believed that college graduates "possess the knowledge and skills needed to succeed in entry-level positions."[7]

At the same time, employers and educators increasingly recognize that diplomas and degrees don't fully capture workers' competencies—and that traditional academic awards aren't a prerequisite for possessing valuable skills. Opportunity@Work founder Byron Auguste, for example, has long advocated on behalf of what he calls "STARs"—workers "skilled through alternative routes."[8] Insistence on college degrees, he argues, has led employers to overlook outstanding talent, especially among underrepresented groups.

As a result of efforts like STARs, as well as a general cultural shift away from higher education, many major employers have dropped degree requirements from job postings in favor of "skills-based" hiring. In 2023, 73 percent of employers said they used skills-based recruitment, according to the Society for Human Resource Management (SHRM).[9] In addition, more than a dozen states no longer require four-year degrees from applicants for government jobs.[10]

A growing number of educators, meanwhile, are also adopting the framework and language of skills. Led by organizations like the Aurora Institute, "competency-based education" has adherents both in higher education and K-12. Some advocates, like the Mastery Transcript Consortium, urge a radical rethinking of high school diplomas to reflect skills gained versus courses taken.[11]

Reformers are even questioning the value of the hallowed "Carnegie Unit," a measure of the hours students spend in classrooms, as the best gauge of student engagement and mastery. In fact, the Carnegie Unit's namesake institution—the Carnegie Foundation for the Advancement of Teaching—has itself become a skeptic of seat-time as a measure of

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student progress. In 2023, it launched an initiative with the Educational Testing Service (ETS) to develop a new, skills-based assessment model.[12] Traditional education "implicitly treats the K-12 classroom as the sole locus of learning and the object of that learning as discrete, fairly narrow academic disciplines," the two organizations wrote in a milestone report.[13]

This general trend toward the recognition of skills achieved versus instructional hours, along with increased employer demand for workforce readiness, created the necessary conditions for micro-credentialing's growth. Micro-credentials, advocates say, offer a mechanism for workers and students to demonstrate and validate their skills and to have those skills recognized by employers, as a supplement to or in lieu of a traditional degree.

"Many of the forms of assessment that we have right now don't capture a holistic view of somebody's capabilities," said Christina Luna, Chief Learner Engagement Officer at Digital Promise. "Micro-credentials can be and are great at recognizing work-based learning experiences and things learners do outside of a school environment."

How K-12 Educators are Using Micro-Credentials

While colleges and employers have focused largely on "industry-recognized" credentials demonstrating technical and job-related skills, K-12 educators have taken a broader view of micro-credentialing's potential scope.

Some school districts have awarded "badges" for motivational purposes or as rewards for achievement, as well as for demonstrating competency in a particular skill. Starting in 2016, the San Diego Unified School District, for instance, has worked with the University of California-San Diego Extension to develop dozens of digital badges for its students.[14] In addition to recognition for social-emotional skills such as "perseverance" and "adaptability," students as young as sixth grade can earn badges for "academic achievement" and "95 percent attendance."[15] Students can also receive awards for completing specialized programs, such as the US-China Future Leaders Summer Program, offered by UC-San Diego's School of Global Policy and Strategy.[16]

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This variability of content even within a single school district demonstrates both the versatility of micro-credentialing and its lack of standardization. "It is the wild, wild West out there right now," said Craig Larrabee, President and CEO of Jobs for Maine Graduates, a state-sponsored nonprofit that developed a series of career-oriented micro-credentials for Maine students and is now working with districts in other states.

In fact, the field of micro-credentialing is sufficiently new that practitioners don't yet agree on what a micro-credential actually is. "The definition of a micro-credential is still evolving," the nonprofit Credential Engine wrote in its most recent national census of credentialing.[17] "There is no regulatory authority or established definition even among institutions of higher education."

While some organizations exclude "badges" from micro-credentials, others use the terms interchangeably. Some organizations insist that

micro-credentials must be competency-based, while others are more relaxed in their requirements. And while many badges and micro-credentials are offered through digital platforms via third-party vendors, others are awarded by teachers based on classwork. (For the purposes of this report, "micro-credentials" include badges and awards for achievement as well as competency, digital and non-digital, to reflect the varied practices among school districts.)

The current flexibility in the field has allowed a profusion of innovative pilots and promising programs to spring up across the country. But the definitional ambiguity could pose a significant hurdle to the adoption of micro-credentialing at scale.

Support for micro-credentials has coalesced into three broad categories in the K-12 sector:

Micro-Credentialing for Career and Technical Education

At present, K-12 schools most commonly award micro-credentials in career and technical education (CTE). In 30 states surveyed by Credentials Matter, a partnership between Excel*in*Ed and Burning Glass Technologies, K-12 students earned more than 1.3 million industry-related credentials in the 2018-19 school year (many of which would be considered "micro-credentials" under the various definitions in use).[18] The three most popular were certifications for Microsoft Office (176,33 awarded), entry-level "core" credentials from the National Center for Construction Education and Research (NCCER) (96,767 awarded), and financial literacy certification from W!SE (71,309 awarded). Other popular credentials include those from Adobe, the National Institute for Automotive Service Excellence, and ServSafe (for food safety).[19]

Piggybacking on growth in higher education, the market for CTE credentialing in K-12 is robust, as is the infrastructure supporting these awards in many states. Leading national vendors like NOCTI, for instance, offer hundreds of state-approved credentials in health care, finance, business administration, and other fields.

These include a suite of micro-credentials, which NOCTI defines as online-only modules focused on "three to five targeted skills using short videos, knowledge checks and resource links," according to a video on the organization's website.[20]

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The credentials cover discrete topics such as "architectural terms and symbols," "blueprint reading," "plant anatomy," and basics of workplace safety. After passing each module's assessment, students collect digital badges that may be shared with—or "transfer" to—postsecondary institutions or employers. "Micro-credentials offer students the opportunity to earn recognition for their knowledge and skills and track their progress," NOCTI's President and CEO, John Foster, wrote in 2022. "Further, educators and employers can use micro-credentials to gauge understanding and technical competence."[21]

To date, students enrolled in CTE pathways have been the most likely to earn micro-credentials, but many more students could be adding them to their resumes as states impose career-oriented courses as graduation requirements. North Carolina, for example, which has a history of prioritizing CTE credentialing, passed legislation in 2023 requiring computer science for all students, beginning with ninth-graders in 2024-25.[22] Students can fulfil the requirement through traditional computer science

classes, such as AP Computer Science, or by earning professional credentials from organizations such as CompTIA.[23] As early as the 2022-23 school year, North Carolina's Department of Public Instruction reported awarding 325,784 industry-related credentials to high school students—a record high for the state.[24]

Similarly, Indiana revamped its graduation requirements in 2017 to end high-stakes testing in favor of "graduation pathways" which allow students to meet requirements by earning a state-approved, industry-recognized credential instead of taking a standardized test such as the SAT or ACT.[25] Since this change, the percentage of students taking at least one CTE class has surged to 80 percent, according to the Indiana Commission for Higher Education.[26]

Micro-Credentialing for Career Readiness and "Durable Skills"

In addition to micro-credentialing for technical competency, many schools are offering or experimenting with micro-credentials for other career-readiness skills, known variously as "durable skills," "soft skills," and "21st-century skills," among other labels. These can include leadership, creativity, critical thinking, communication, and collaboration, as well as attitudinal skills such as having a "growth mindset."[27]

Perhaps the most well-known credential in this space is the ACT WorkKeys National Career Readiness Certificate, which assesses students on what it calls "essential skills" such as "working in teams," "work discipline," and "customer service," as well as problem-solving and "financial awareness." Sub-competencies include such topics as employer expectations for "personal presentation," "fitting in at work," and "behaving ethically." [28]According to Credentials Matter, WorkKeys was the sixth most popular industry-related credential among K-12 schools in 2018-19, with nearly 59,000 awarded.[29]

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>
> – Kirk Banghart, Vice President of the Colorado Rural Education Collaborative

The intangibility of these skills, however, has led to competing frameworks for definition, assessment, and validation. The Carnegie/ETS report on skills-based assessments identified twelve different skills typologies, including the OECD's Learning Framework, the XQ Institute's Student Performance Framework, the Asia Society's standards for Global Competence, and the Collaborative for Academic, Social and Emotional Learning (CASEL) Five.[30] While the CASEL Five extols "self-awareness," "self-management," and "responsible decision-making" as core skills, the OECD identifies "transformative competencies" such as "reconciling tensions and dilemmas."[31]

A variety of organizations have developed micro-credentials based on these frameworks or on their own research. The nonprofit Education Design Lab, for instance, offers a suite of nine micro-credentials in durable skills, including self-directed learning, empathy, resilience, and initiative.[32] More than 125 school districts have adopted these credentials, according to the organization's website.[33]

Other schools and districts have developed bespoke micro-credentialing frameworks in lieu of implementing a ready-made solution. The Colorado Rural Education Collaborative (CREC), for instance, is piloting a set of nine micro-credentials centered on what it calls "North Star" skills, such as adaptability, critical thinking, and communication.

CREC Vice President Kirk Banghart said the organization convened meetings with nearly 100 local employers to solicit their input on the

skills they thought young workers lacked. "And the answer, of course, was not that they can't read, they can't write, or they can't do math," he said. "It was really around what we used to call 'softer' skills." By engaging community businesses, Banghart said, CREC hoped to build trust among employers that the micro-credentials students earn reflect in-demand skills. "The viability of micro-credentialing and the value of a credential is really about whether or not the employer cares about it," he said. Banghart said the CREC, which includes 86 rural districts in Colorado serving more than 60,000 students, will begin piloting these credentials in the 2025-26 school year.[34]

Badging for Academic Content

An emerging application for micro-credentialing is "badging" for academic content, especially math. A leading effort in this area is the XQ Institute's Math Badging initiative, launched in 2022. Working with Student Achievement Partners, XQ developed a system of 23 badges, "each representing a set of core mathematical concepts and practices," according to XQ.[35] XQ's catalog of badges roughly tracks the content of high school algebra and geometry, including linear equations, trigonometric functions, and coordinate geometry.[36] Under XQ's implementation guide, which is competency-based, students earn badges based on a "portfolio of evidence," along with performance assessments and assessments for concepts and skills.[37] The guide recommends task-based learning with group projects and problems oriented around relevant, real-world situations.

Schools in Kentucky, Illinois, and Idaho are piloting the badges, with each state following its own strategy for implementation. Kentucky began with an initial cohort of six schools involving about 320 eighth- and ninth-graders and has since added a second cohort of five schools, according to officials at the Kentucky Department of Education. So far, Kentucky has approved eight badges corresponding with its standards of learning for Algebra I, though schools and districts have the freedom to adapt the badging framework as they see fit.

Likewise, Illinois began with a preliminary cohort of six schools and has since added two high schools and the Illinois Mathematics and Science Academy to its pilot. In contrast to Kentucky, which has focused on younger students, Illinois sees badging as a strategy for students nearing graduation. Some schools, for example, are embedding badges into CTE classes where math competency is especially relevant. At Charleston High School in rural Charleston, Illinois, for instance, students can earn badges in geometry while taking a class on construction. "The badges are a really beautiful fit for this because it helps to make explicit the math that's being learned along with construction concepts,'" said Heather Penczak, Director of Innovation at Northern Illinois University's Education Systems Center, which is helping to implement the pilot.

Other Illinois schools are trying out badges for students enrolled in "transitional math," a developmental course aimed at students "who are not projected ready for college-level math as of the end of their senior year," according to the Illinois State Board of Education.[38]

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>
> – Rachel Safferstone, Senior Director of Product Management at the XQ Institute

Students who pass transitional math with a grade of C or better are guaranteed placement in a college-

level math class at Illinois community colleges (thereby bypassing remedial education). Illinois has committed to accepting badges in lieu of requiring students to sit through a traditional class, which Penczak said can accelerate a student's progress through transitional math. "Instead of having a student retake a full year of algebra, you could target specific badges—those chunks of ideas and math concepts where they didn't perform well and where supports are needed," she said.

Rachel Safferstone, Senior Director of Product Management at the XQ Institute, said this kind of innovation was what the pilot hoped to encourage: "Math is a point of failure for too many students in high school." Badging, she continued, gives schools "the opportunity to craft pathways that meet students where they are and to get them through math at cadences appropriate for them."

Micro-Credentialing's Promise: A New Pedagogy and Gains in Achievement

Though there are few rigorous evaluations of K-12 micro-credentialing, many educators involved in pilot initiatives say they've seen promising anecdotal results, including greater student engagement, achievement and post-secondary readiness, especially among students who previously struggled. Some also report significant improvements in teaching, catalyzed by a focus on mastery. For others, the advantages of micro-credentialing are philosophical; they see it as a bridge to the competency-based education they argue should become the norm in U.S. high schools.

A Means of Improving Student Engagement and Achievement

Badges have been a transformative tool for educators like Shelley Nash, who teaches math at Independence Alternative High School in rural Blackfoot, Idaho. Badging, Nash says, has been an effective way for her to reach her students, many of whom have been referred to her school after facing academic or disciplinary problems or following involvement with the justice system. "These are the kids that typically struggle academically, either because of behavior, time out of school, or because they've been overlooked," she said, adding that a significant number may also have learning difficulties that have gone undiagnosed. Badging, Nash said, has helped many of these students succeed: "The idea of helping students see their success in smaller chunks has turned out to be more powerful than I expected."

Independence was in the first cohort of schools involved in Idaho's Math Badging pilot with XQ, and Nash was among the first teachers to implement badging in the classroom. She now offers badges in algebra, geometry, applied math, and data science, and acts as a coach or "badging mentor" to other teachers new to the project. Nash says XQ's framework, which requires demonstrating mastery in a sequence of tasks, enables her to engage students with hands-on, collaborative projects focused on specific competencies. She taught congruence, for example, by having her students assemble triangles with cut-up pipe cleaners of different lengths.

Nash also teaches real-world problems relevant to her students' lives, which has led to unexpected impacts outside the classroom. For a project titled "Do the Math, Save a Life," algebra students identified seven problematic intersections in Blackfoot City by observing and measuring traffic flows and creating a crash data dashboard. Over the course of the project, they learned one- and two-variable data modeling, statistical concepts such

as standard deviation, and data analysis for the charts and graphs created for their presentation, along with other competencies required to earn two badges. In January 2024, the students presented their findings to Blackfoot City's Transportation Committee, earning local media coverage as well as praise from city officials. The project enormously boosted her students' confidence, Nash said. "These kids aren't used to getting positive attention from anybody, much less the community."[39]

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> – Shelley Nash, math teacher at Independence Alternative High School

Cathy Beals, Mathematics Coordinator for the Idaho Department of Education, said she's seen similar impacts in many of the 16 Idaho schools that have adopted the badging model so far. "I've walked into a lot of math classrooms where kids are asleep in the back of the class, the teacher is talking, and nobody's listening, but when I walk into these classrooms the kids are excited to tell me about what they're learning in high school math," she said. "They can tell me why the math is important, which hardly ever happens in high school math classrooms." Many teachers, she said, report that students are more confident about math, and that they see it as "purposeful and relevant."

Likewise, educators in Kentucky report similar gains in student engagement at schools piloting XQ's math badging framework. One benefit, said Robin Hyden, Academic Program Consultant in the Kentucky Department of Education's Division of Innovative Learning, is the individualized learning that badges enable. "When you walk into a classroom, you may have four or five different students working on completely different badges," she said. "Students who are the higher achievers are not held back, and everyone is able to advance at their own pace."

Hyden also cited the benefits of relevant, task-based instruction for improving the quality of student participation and achievement. For instance, samples of student work collected by state officials featured projects such as "The Cost of Driving Fast," which challenged students to analyze whether "the potential financial cost of a speeding ticket is worth the amount of time saved by getting to a destination faster." Students modeled how long it takes to drive specific distances at different speeds, and then calculated the cost per mile if they got caught for a speeding ticket. Students created charts, slideshows, and even videos to present their conclusions.[40] Another project, "Breaking Even with Side Hustle Businesses," asked students to calculate the "break-even" point where earnings from a side hustle (e.g., driving an Uber) would outweigh expenses (e.g., the cost of gas and insurance). "We're creating vibrant learning experiences for our students," Hyden said.

The "stack" of competencies leading up to a badge helps students understand their progress in a way that's much more transparent than in traditional education, said Digital Promise's Christina Luna. "We don't have a lot of opportunities to recognize learning along a journey if we're just giving grades at the end of the course," she said. "Micro-credentials can really help learners see where they're advancing and expanding their skills in an interim interval." The result, she said, is often greater achievement and motivation.

In addition, the badges themselves can be motivating. "Some of the kids described collecting the badges like collecting all the stones in the Infinity glove (sic)," said Cathy Beals, referencing the all-powerful symbol in a popular Marvel movie. Teachers are also taking pains to recognize students who successfully earn a badge, sometimes with class parties and assemblies. "It's just really showed me how much kids need cheerleaders, especially kids

that struggle in math," Beals said. "The badging has allowed teachers and students and administrators to celebrate learning, and it's this celebration of success that I think is the real heart of this project."

A Catalyst for Improving Pedagogy

Micro-credentialing's competency-based focus has also sparked broader improvements in pedagogy, educators say. Among schools participating in XQ's math badging pilot, for instance, the emphasis on task-based learning, collaborative projects, and material relevant to daily life has prompted teachers to rethink their approach to math. "Badging uses a more humanizing experience for students," said Veronica Blackham, a mathematics specialist at Idaho State University who has been helping to implement Idaho's pilot. "Teachers are caring about students as learners and humans, versus 'I'm turning this page and teaching this lesson.'"

Sherri Bell, a math teacher and badging mentor at West Jefferson High School in Terreton, Idaho, said that under traditional instruction, "[Students] would have gotten a lecture, maybe a little bit of discussion on how to solve a problem, and then they would do some homework." Now, she said, groups of students in her class might be assigned a concrete, real-world question such as, "How many times does a heart beat in a lifetime?" To answer this question, Bell said, students measured their own heart rates as a starting point. "They got a running heart rate and a resting heart rate and averaged them," she said. Students then researched life expectancies and carried out the necessary calculations to arrive at a total. This approach, Bell said, gave students the agency and self-efficacy to overcome their fear of math. "I let them figure it out whatever way they wanted to," she said. "They just had to be able to explain to me what they did." As a result, Bell continued, "they love math because they aren't scared of it anymore."

Idaho's Shelley Nash said that badging validated some of the teaching techniques she had already been pursuing in her classroom: "It allowed me to encourage and promote the pedagogy I knew was best for students—all students, but especially struggling students." One benefit of this validation, she said, is that other teachers at her school, including teachers in other subjects, are adopting some of her methods. For instance, she said, she is working on a collaboration with one of her colleagues, a science teacher, to create a project around water chemistry and water treatment. "We've had boil orders in the last few years because of E. coli leaching into our water," she said. "It's personal to the kids."

Among schools participating in XQ's math badging pilot, for instance, the emphasis on task-based learning, collaborative projects, and material relevant to daily life has prompted teachers to rethink their approach to math.

The influence of badging learning methods on more traditional math instruction has been a welcome outcome of micro-credentialing, said Idaho's Cathy Beals. These shifts are "sending a statewide message about what good high school math instruction looks like," she said. "It's setting a bar that this is the kind of instruction the state values."

A Mechanism for Promoting Career Exploration and Readiness

While the benefit of career-related credentialing seems obvious—a way to show employers what a worker can do—educators say these awards can also help students explore and navigate potential careers.

North Carolina, for instance, recently began offering "Coding in Minecraft" micro-credentials for middle- and high-school students through a contract with the global ed-tech company Prodigy Learning.[41]

More than 6,300 students enrolled in these courses during the 2022-23 school year, according to state data, and that number grew to more than 9,000 in 2023-24, according to Rob Van Dyke, formerly assistant director of Career & Technical Education for North Carolina's Department of Public Instruction.[42] Minecraft's popularity, said Van Dyke, has helped encourage younger students' interest in computer science. "We're using Minecraft as a bridge to show students that computer science is not just this big ambiguous thing—that they can see themselves in it," he said. Van Dyke added that because some of these micro-credentials can be earned online, students in smaller or rural schools that don't otherwise have access to computer science classes can still get meaningful exposure to the field. The state offers a progression of courses culminating in "expert" micro-credentials for Java and Python that also carry the imprimatur of Microsoft. Earning these credentials also satisfies the state's new computer science requirement.[43]

In other states, career navigation is itself a stand-alone credential. In Maine, for instance, public high school students can earn a Career Exploration Badge if they participate in the state's Jobs for Maine's Graduates (JMG) program at their schools. While the badge requires preparatory coursework in the classroom, including mock interviews and resume writing, the heart of the program is a 40-hour internship with a local employer—an experience that can prove life-altering for some students.[44]

One such student is Grazzielle Buford, a senior at Morse High School in Bath, Maine, who was paired with the owner of a local candy shop. Buford credits their boss's mentorship for sparking an interest in college. "Before, I didn't really want to go to college at all," Buford said. "And then once I started looking into it, I realized I could get a degree for something that I'm interested in, like business and accounting, which is now the plan."

Maria Morris, a JMG Specialist at Morse and Buford's teacher, said the internship was a "pivotal point" for Buford. They are "still not 100 percent sure that college is the right thing for them, but it's part of their postsecondary plan," Morris added. "I don't think they would have gotten there without that out-of-school connection."

For another of Morris's students, senior Emily Delan, JMG presented an opportunity to explore different potential careers. Initially interested in journalism, Delan shadowed an official in the city of Bath's office of public affairs. "After that, I decided that maybe I wasn't so interested in journalism," she said. When teaching emerged as a possible path, she shadowed one of her elementary school teachers, and has since settled on nursing. She's now enrolled in an anatomy class at her high school as well as an online class for students interested in medical careers. "A lot of people I hang out with don't really know what they want to do, so I think having that navigation through JMG about where you want to go in your career path really helps," she said.

JMG CEO Craig Larrabee says these results are especially gratifying because of whom the program serves: students who are economically disadvantaged, have disabilities, are involved in the foster care system, or who belong to other minority populations. "We work with many kids that come from generational poverty," Larrabee said, "and their aspirations are so low that they don't know what opportunities truly exist for them." JMG, Larrabee added, exposes students to opportunities they may not have gotten otherwise and helps build the social capital that more affluent students take for granted. While the internship is the most valuable part of the program, the JMG badge validates a student's experience and the skills acquired. So far, Larrabee said, more than 4,000 Maine students have gone through the badge curriculum, including the 40-hour work experience, and the organization recently received funding to enroll 2,000 more students in the program this year.

A Bridge to Competency-Based Education at Scale

While all states now have policies that allow competency-based learning, only a handful of districts and schools have fully integrated this concept into how they teach and, more importantly, how they grade.[45] Micro-credentials, however, could help hasten this transition. "Micro-credentials are the impetus for exploring ways to embed more competency-based practices into classrooms," said Digital Promise's Christina Luna.

The apotheosis of competency-based education, for some advocates, is a "mastery transcript" that replaces traditional high school diplomas with a list of competencies and experiences. Under this vision, students would each possess a unique "learner record" capturing a holistic view of their capabilities.

While credentialing for technical skills and academic mastery are important initial steps toward competency-based education, advocates would eventually like to see students receive credentials for skills acquired outside of the classroom, in work-based learning, internships, or other experiences. "A big part of competency-based education is learning that happens outside of school, and micro-credentials are a way for school systems to provide validation for the skills that students learn elsewhere," said Jennifer Kabaker, Director of Strategy and Partnerships at the Aurora Institute.

For instance, Kabaker said, a student's part-time job at the front desk of a hotel could help them earn a micro-credential in communication, if one is offered by their school. "Over time as that learner develops that communication skill," Kabaker said, "they're able to collect evidence of that skill via their job, and then they're able to submit that evidence to earn a micro-credential." This credential, Kabaker continued, could be valuable in the workforce but also in a school setting if it helps to fulfil a graduation requirement. "So it's a direct connection between the work that students are doing outside of school, and a validation of learning for the school system," she said. "It's one vehicle by which educators and systems can capture demonstrations of mastery from students… It takes that learning and captures it in a very nice, portable package."

The apotheosis of competency-based education, for some advocates, is a "mastery transcript" that replaces traditional high school diplomas with a list of competencies and experiences. Under this vision, students would each possess a unique "learner record" capturing a holistic view of their capabilities. In addition to credentials for technical skills and academic mastery, students would record what mastery transcript advocate Tom Vander Ark calls "rich learning experiences" such as project-based assignments and internships. According to Vander Ark, who is a board member of the Mastery Transcript Consortium and CEO of Getting Smart, more than 500 colleges are now accepting students who graduate with a mastery transcript or "mastery record."[46] In May 2024, the Mastery Transcript Consortium became a subsidiary of the Educational Testing Service (ETS), adding further potential momentum to this shift.[47]

Challenges: Quality, Credibility, and Consistency

Despite the promise of these pilots, K-12 micro-credentialing faces significant obstacles to widespread adoption. Many of the challenges are identical to those faced by micro-credentialing in higher education and the workforce: quality, portability, and external value. Data collection is

spotty, and despite widespread anecdotal evidence, rigorous evaluations do not yet exist to show that micro-credentials improve learner outcomes on metrics such as graduation rates, college attendance, wages, or employment rates.

Other concerns are unique to K-12, such as the details of implementation that could determine a program's success. Inadequate professional development, for instance, can hamper teacher buy-in.

Student involvement has been slow in some places. The San Diego school district's micro-credentialing initiative, for example, does not seem to enjoy widespread popularity, despite its myriad of offerings. According to officials at UC-San Diego, the program awarded a total of 47,966 badges from 2016 to 2019—to a student population of more than 121,000.[48] Nor has uptake been evenly distributed among offerings. While the badge "6th Grade Academic Achievement" had 467 "owners" as of May 2025, many dozens of badges, especially those for durable skills, had no owners at all.[49]

Other early pilots appear to have been discontinued, despite significant fanfare at their launch. Aurora, Colorado, public schools, for instance, began a high-profile digital badging effort in 2015 that garnered significant media attention.[50] The initiative's 21 badges were aimed at "essential skills," such as collaboration, critical thinking, and self-direction, and students received access to a "digital backpack" where they could collect the micro-credentials they earned.[51]

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In the first three years of the initiative, just 16 percent of the more than 80,000 6th to 12th grade students in the district earned one or more badges.[52] Researchers "were not able to find a statistically significant difference" between students who earned badges and students who didn't on measures such as standardized test scores, attendance rates, or disciplinary referrals.[53] Web pages related to the digital badging have been taken down and school district officials haven't returned requests for information. Pilots in Indiana and in Polk County, Florida, also have been shuttered. These early forays into micro-credentialing in elementary and secondary education point to several challenges to scaling the strategy.

Challenge 1: Building Trust in a Credential's Value

By far, the biggest hurdle facing micro-credentials in K-12 is the same challenge facing micro-credentials more broadly: a lack of trust in their value. Schools creating or issuing micro-credentials cannot assume these awards will easily find a receptive audience among employers and colleges. This lack of assurance could ultimately prove a disservice to students. "It's a waste of time if we put this together and the students don't get any value from it [because it's] not being recognized by higher ed or the business community," said JMG's Craig Larrabee.

As much as employers want to shift to skills-based hiring and non-degree credentials, the current credential market is too vast, confusing, and unstandardized for employers to decipher effectively. According to a 2024 analysis by the Burning Glass Institute, just 37 percent of employers that dropped degree requirements "changed the academic profile of those they ultimately hired." Skills-based hiring also accounted for only one in every 700 new non-degree hires in 2023.[54]

Reticence about credentialing's value also pervades higher education, even as colleges and universities are micro-credentialing's most prolific

providers. "We're only seeing that about half as many post-secondary institutions that are issuing micro-credentials are receiving them," said Digital Promise's Christina Luna. "There's still a lot of work that needs to be done to get post-secondary institutions to trust micro-credentials for course credit or advancement toward a degree."

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One problem is the sheer multiplicity of credentials from a profusion of sources. According to the nonprofit Credential Engine, the overall credential tally in 2022 was nearly 1.1 million (including traditional degrees, certificates, micro-credentials, and other non-degree awards).[55] Because employers and colleges lack reliable mechanisms for assessing credentials' quality and content, high-quality credentials drowning in a sea of competing awards may not get the recognition they deserve.[56] "It's a messy space right now where there are a lot of credentials being issued, but not that many where the student feels like they're receiving value, or where the recipient employer feels like they're receiving value," acknowledged Getting Smart's Tom Vander Ark.

Nor are employers necessarily willing to invest the time and energy to investigate a credential's worth, according to one federal education official who requested anonymity because they lacked authorization to speak. "When we sat down with employers, they understood what a high school diploma meant, they understood what work experience meant, and they understood that certain credentials had some relative value," this official said. "But a student earning a badge through a digital platform they didn't have any familiarity with? There wasn't any interest to try to figure out what that meant because it wasn't worth the return on investment."

Moreover, some employers are skeptical that career-focused skills, especially durable skills, can adequately be taught in classrooms. When Indiana launched a pilot in 2022 to issue "skill development badges," employers were reluctant to embrace the new credentials.[57] The badges, piloted at three high schools, focused on three of the "employability skills" identified by the state—communication, collaboration, and work ethic—and were delivered via online modules developed by an outside vendor.[58] According to Jason Callahan, who was formerly Assistant Secretary of Student Pathways and Opportunities at the Indiana Department of Education and is now an executive vice president at the Forum for Youth Investment, "Employers basically said we don't really trust the durable skill development happening in the K-12 space." He added, "They said it really needs to be in an applied setting, and that they trust fellow employers more than K-12 to be able to do that."

A final concern among employers is the mismatch between the skills they want to see and the credentials schools are offering. Credentials Matter, for instance, found that "only 18 percent of the credentials earned by K-12 students are demanded by employers," while six of the top 10 earned are "very over-supplied."[59]

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ACT's WorkKeys credential, for example, ranked sixth in the number of credentials earned in 2022 but was not among the top 10 credentials employers wanted. On the other hand, a commercial drivers' license was the third-most requested credential on employers' lists but nowhere in the top 10 among students. (One important area of congruence, however, was Microsoft Office certification, which ranked first on both the employer list of in-demand credentials and the list of credentials awarded.)

Credentials Matter was also especially critical of "general career readiness" credentials, echoing the skepticism heard by Indiana's Callahan. Although more than a quarter of all credentials earned by K-12 students fall into this category, "they often carry little weight in the labor market," the report found. "Unfortunately, general career readiness credentials are often either unnecessary to get a job or represent such a small fraction of the necessary knowledge and skills that holding one—without complementary credentials—does not lead to a clear or successful pathway in the workforce," researchers wrote.[60]

Challenge 2: Adequate Implementation and Infrastructure

The details of implementation and infrastructure can pose another set of obstacles. While the adoption of widely familiar, industry-recognized credentials (such as Microsoft Office certification or trade certifications) should generate little friction, untested or pilot efforts centered on durable skills or academic content carry greater risks of resistance or failure. Experienced stakeholders identified four chief concerns around widespread acceptance of micro-credentialing: lack of adequate professional development and teacher buy-in; lack of student buy-in; lack of consistency in rigor, grading, and alignment with standards; and portability.

Adequate professional development and teacher buy-in

The success or failure of any reform depends on the commitment of the teachers tasked with carrying it out. In the case of micro-credentialing, which can demand significant shifts in pedagogy, class structure, and assessment, lack of teacher buy-in can doom an effort to subpar outcomes such as poor participation and completion rates. The absence of early teacher involvement, for instance, can leave teachers unconvinced of a program's benefits and unenthusiastic about its implementation. They may be reluctant to integrate content into existing coursework, thereby further undermining an initiative's effectiveness. "Teachers will struggle is if it isn't aligned to what they're already doing," said Naomi Boyer, Senior Vice President for Digital Transformation at the Education Design Lab. "If it's just one more thing, they're not going to give it the attention it needs."

Investments in teacher professional development are essential to avoiding these kinds of failures, stakeholders say. Indiana's pilot, for instance, unfolded on an accelerated timetable, with site selection in June and launch that same September. As a result, one school debuted the effort in relatively cursory fashion, as an optional activity during an advisory period when students faced competing obligations. Consequently, participation rates were much lower than wanted. "The teachers were not very bought into it," said Anne Hyslop, Director of Policy Development at All4Ed, who consulted on the pilot. "So it was not a success." In retrospect, Hyslop said, a year dedicated to pre-implementation planning would have built teacher buy-in and made the effort more effective in attracting student interest, participation, and credential completion.

Similarly, better stakeholder coordination could have encouraged more engagement by both teachers and students in the Polk County, Florida, initiative, say those involved. As with the Indiana pilot, uptake

and completion rates were disappointing. "I think probably a convening of the administrators and teachers for on-the-ground capacity building would have made it more successful," said the Education Design Lab's Naomi Boyer, who was a consultant on the project. Boyer estimates that only about 120 micro-credentials were ultimately awarded over the course of the pilot.

Student buy-in

Lack of teacher buy-in, in turn, leads to lower student engagement. But students also need to believe that their investment in earning a micro-credential will pay dividends in college or the workforce or— considering the stick instead of the carrot—that failing to earn one will put them at a competitive disadvantage relative to their peers.

Flaws in program design or implementation can sabotage student interest. In Indiana, for instance, take-up was far less successful with seniors approaching graduation than with younger students. "The upperclassmen had already completed their graduation requirements, and they were kind of burned out," said All4Ed's Anne Hyslop. The school even offered gift cards as an incentive for participation, Hyslop said, "but that didn't make a huge dent." Younger students, on the other hand, "felt like it was more pegged to something that was relevant to them, and it wasn't coming at a time when they were already burned out and checked out," Hyslop said. Content was also integrated into existing coursework, so it did not seem like an added burden.

> **Students need to believe their investment in earning a micro-credential will pay dividends in college or the workforce or that failing to earn one will put them at a competitive disadvantage relative to their peers.**

Relevance could be the biggest factor in student participation, said Lisa Richardson, a Principal at the Common Group and Project Lead for the Catalyze Challenge, a collaborative funding initiative to encourage work-based learning innovation: "When there's practical application of the skills coupled with a credential, there seems to be more energy and traction around them." "But," she added, "when it feels really opaque or there's not a clear connection point between the skill and an opportunity to use the skill, it's hard to get traction because it feels kind of disconnected."

Students show their lack of enthusiasm when they fail to claim a credential they've earned or don't add it to their resumes. In one recent pilot of soft skills micro-credentialing funded by the Catalyze Challenge, Richardson said, about a quarter of participating students qualified for a badge but only 5 percent claimed it—and 0 percent shared it via social media profiles. In another pilot where students could earn a badge for entrepreneurship, 93 percent of students earned the credential but only 43 percent claimed it.

Consistency in rigor, grading, and alignment with standards

Educators piloting micro-credentials, especially for academic content, may also face perceptions that this approach is less rigorous than traditional instruction. "People need to trust that students are getting what they need to be successful," said Shelbi Cole, Senior Designer at Student Achievement Partners. "If you can show that badging is not watered down—that it's aligned to the same standards—you can build that trust."

Establishing rigor means micro-credentials should be awarded for demonstrated competency, said the Aurora Institute's Jennifer Kabaker, not handed out like participation trophies. "There are a lot of districts dabbling in micro-credentials for gamification that are not competency-based," she said. For example: "If you came to school on time

five days in a row, you could get a micro-credential, or if you completed your homework for a month, you could get a micro-credential." One school, she continued, allowed students to exchange the badges they earned for certificates to In 'N' Out Burger. This approach, Kabaker said, not only undermines the credibility of micro-credentialing but misses the opportunity to use micro-credentialing as a lever for pedagogical reform.

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One challenge, educators say, is that credentials must be attainable enough to encourage student participation but rigorous enough to be credible to the outside world. "We are putting our reputation as a school on the line to say that a child has this skill," said Kirk Banghart of the Colorado Rural Education Collaborative. In North Carolina, work-based credentials are organized into three "tiers" of recognition, said former state education official Rob Van Dyke, with "Tier One" considered to be an entry-level credential and "Tier Three" to be an industry-recognized professional credential such as the CompTIA certification for IT.

Maintaining rigor is one reason many students in Maria Morris's JMG classes do not end up earning a badge. "I want to have integrity in awarding these badges," she said. For instance, she's awarded just 16 career exploration badges over the past two years, and for a new badge in entrepreneurship launched by JMG last year, she awarded only six badges to a class of 20. "We don't do participation trophies," she said. This particular badge, she said, required students to prepare a detailed business plan as their final project, which she said was a challenging assignment.

For some initiatives, methods of assessment may be as important a consideration as standards. On the one hand, leaving awards decisions in the hands of individual educators can facilitate personalized instruction, but it can also mean variability in what awards represent. Digital assessments, on the other hand, might be standardized but not always available or feasible, especially for pilot projects.

Yet another challenge is how to translate competency-based micro-credentials into grades or credits if state or district accountability standards don't currently accommodate these awards. In Kentucky's math badging pilot, for example, students enrolled in Algebra I progress through a series of eight badges, each of which consists of a series of sub-competencies. The challenge, educators say, is determining how many badges a student must earn to receive course credit for the class and how the mastery of sub-competencies corresponds with letter grades. At the moment, students who earn six out of the eight badges earn an "A," though state officials acknowledged this to be a stopgap.

Portability

A final practical challenge for the success of a micro-credentialing initiative is designing the infrastructure to support it.

Ideally, students should be able to collect and track the micro-credentials they earn in a central digital repository from which they can share relevant credentials with employers and postsecondary institutions. Such a repository would also serve to authenticate a credential's validity and to provide information about the specific skills the credential represents. Micro-credentialing advocates argue

that this kind of centralized infrastructure would help to bring transparency, standardization, and quality control to the field, while also providing students with the benefits of portability and convenience. "If you earn micro-credentials while you're still in K-12, you should be able to have access to that information throughout your life," said Digital Promise's Christina Luna. "You should not have to go back to your high school and get proof that you earned those micro-credentials."

Micro-credentialing advocates argue that centralized infrastructure would help to bring transparency, standardization, and quality control to the field, while also providing students with the benefits of portability and convenience.

Because of the field's relative newness, however, a universal "registry" does not yet exist. Rather, the field currently consists of multiple competing eco-systems in various stages of development. The ultimate scalability of micro-credentialing will depend, in part, on the robustness of the infrastructure to support it.

Among the largest and best-known of these infrastructure efforts is the TrustEd Micro-credential Coalition, run by the nonprofit edtech partnership 1EdTech.[61] Launched in late 2023, the coalition includes K-12 school districts, universities, and corporate partners such as Google and Cengage. Its goal is to build a digital framework around 1EdTech's "Comprehensive Learner Record Standard."

Also in 2023, a group of philanthropies led by Rockefeller Philanthropy Advisors launched SkillsFWD, an effort to build "skills-based ecosystems" based on the development and application of individual "learning and employment records" (LERs)—digital resumes consisting of verifiable and shareable credentials.[62] Rather than create a single nationwide infrastructure, SkillsFWD has provided funding to create seven state-wide or regional credentialing systems.[63] Among the grantees are C-BEN, which is working to build a system in Alabama; the Colorado Workforce Development Council, which is launching ColoradoFWD; and Western Governors University, which is building a statewide LER system in Indiana.

The State of Idaho, meanwhile, has already launched a micro-credentialing platform called SkillStack, which was funded by a grant from the US Department of Labor's Employment and Training Administration.[64] Although this platform is primarily intended for students to track, collect, and share workforce development credentials earned at Idaho state colleges, officials say they're also working to integrate the badges developed under the XQ Institute's Math Badging pilot at local high schools.

Assuming all of these ecosystems launch successfully, the next major challenge will be to ensure interoperability—that they can, in other words, "talk" to each other. Students moving across state lines will need assurance that their credentials move with them.

Challenge 3: Ensuring Equity

A final set of challenges involves maximizing micro-credentialing's potential to promote equity. One of the biggest concerns among educators is that micro-credentials, particularly for academic content, could become a form of "tracking" reserved for students who don't succeed in traditional instruction. Siloing micro-credentials in this way could limit their universality and exacerbate worries about their rigor.

Ironically, the early benefits micro-credentials showed for struggling students are fueling misperceptions about their quality. "It's easy to

assume that by giving kids who are otherwise struggling a badging system, it's a less high-quality way of learning," said the Aurora Institute's Jennifer Kabaker. "And we see that happening with perceptions of competency-based education in general where there's this fear, particularly among wealthier families for whom traditional K-12 education has worked, that competency-based education will harm their students in some way—that it's a lower quality or less rigorous way of learning." In reality, Kabaker said, "it's actually very possible that it's a more powerful way of learning and that all students would benefit from competency-based systems." Whereas traditional education works for some, but not all, students, micro-credentialing could work for almost all students, including those whom the current system fails.

> **Ironically, the early benefits micro-credentials showed for struggling students are fueling misperceptions about their quality.**

Students succeeding in traditional education have little incentive, however, to take the risk of switching to micro-credentialing or competency-based education more broadly. School districts are likewise wary. "I don't know that busting up the Carnegie unit system is realistic," said Idaho's Cathy Beals. "It is such an entrenched system in America that it would take a much bigger movement for that to happen, and I think that until higher ed changes, high schools are not going to jeopardize students' chances of getting into college." Getting Smart's Tom Vander Ark said that of the roughly 400 schools participating in the Mastery Transcript Consortium, "there are really only about 20 that have actually used it as their primary signaling system." Schools are concerned, he said, "that their students won't be admitted to college at the same rate that they have been, or that they hope, by leaving out courses and grades and just communicating competencies."

So long as colleges are reluctant to accept micro-credentials as equivalent to traditional academic credit, K-12 schools will be reluctant to offer them at scale.

The Way Forward

Micro-credentialing's current popularity may tempt some districts to jump in with both feet, particularly when a burgeoning cottage industry of educational technology vendors is offering ready-made solutions at scale. But educators involved with micro-credentialing pilots counsel caution. "Don't go too fast," said Idaho's Cathy Beals. "My advice would be to start small, get success and then build from there."

This advice may well apply to the field as a whole. The rush to adoption has created a vast and chaotic landscape for micro-credentialing. But policymakers and practitioners can use the lessons from these early experiments to maximize the potential of micro-credentialing and create valuable new opportunities and educational pathways for K-12 students.

Micro-Credentialing is a Tactic, Not a Strategy

The emerging consensus among early adopters is that educators should think of micro-credentialing as a means to an end, not an end in itself, especially if a particular credential hasn't yet established its external value to employers and colleges. "My biggest piece of advice is to get really clear about what the outcomes of a micro-credential should be," said Charlotte Cahill, Associate Vice President at Jobs for the Future (JFF); "[ask yourself] why are you pursuing a micro credentialing strategy?" If, for

instance, the purpose of a micro-credential is to help students land jobs, Cahill said, schools should "do the legwork" to ensure that a micro-credential has value to employers in a field where workers are in demand. "My greatest concern is that we're selling kids on a false sense of accomplishment," she added. "The greatest disservice that we can offer a young person is telling them this thing is going to help them reach their goals and it doesn't actually help."

> **Instead of buying an off-the-shelf system of digital micro-credentials, schools and districts may prefer to prioritize the creation of universal work experience programs or internships that micro-credentials could serve to memorialize.**

For districts concerned about credit recovery to boost graduation rates, badging might be an ideal way to help students fill gaps in skills without retaking entire courses (provided that school accountability systems are also modified to accept badges for credit). Likewise, badging could help catalyze new methods of teaching for schools interested in improving their pedagogy. At the same time, badging isn't a prerequisite for reform. "If you're substituting the badge for failures in instruction, you should just change the curriculum so it matches what the badge is doing," said All4Ed's Anne Hyslop. "You don't need the badge on top of that."

Educators also caution that credentials don't have intrinsic value aside from the bundle of competencies they represent. In other words, the skills and experiences underlying a micro-credential are more important than the credential itself. JMG's Career Exploration Badge, for example, signifies the completion of a 40-hour work experience, as well as the acquisition of other skills that employers find valuable. What this means for schools and districts is that instead of buying an off-the-shelf system of digital micro-credentials, they may prefer to prioritize the creation of universal work experience programs or internships that micro-credentials could serve to memorialize. "If I came to you with a resume that had a micro-credential, and you had somebody else come with actual work experience, who are you going to hire?" asked Quentin Suffren, Senior Advisor at Excel*in*Ed. "How close to the authentic experience is the micro-credential versus the authentic experience itself?"

Details of implementation could also make or break a credential's viability. In rolling out a new credential, schools should not assume its value to students and teachers is self-evident—that if schools build it, they will come. Rather, schools must invest in extensive professional development to build teacher buy-in, help integrate or align credentialing content with existing curricula, target the credential to the students most likely to show interest, and ensure that earning a credential isn't perceived to be a burdensome addition to student and teacher workloads. Suffren, who worked on the Indiana pilot, said that "what went well is when schools chose to embed the micro-credentialing experience into a dedicated classroom and with a dedicated support teacher who was invested in the idea."

Employer Engagement is Essential

Stakeholders also say that employer participation is a critical component of building trust in micro-credentials, particularly those focused on durable skills that don't yet have widespread industry recognition. Employer conversations can also help establish which skills are in demand so that students earn credentials of value. "Getting them involved in the process of designing these credentials is absolutely essential, because if not, they don't know what they are, and [the credentials] don't have meaning," said the Education Design Lab's Naomi

Boyer. "They need to understand that what they've asked for is embedded in those credentials."

This engagement can take multiple avenues, such as soliciting input from employers during credential development, as in the case of CREC, or integrating internships and work experiences into credential requirements, as in the case of JMG. In one Illinois school district, employers are even part of the assessment process. Under Rockford Public Schools' Work-Study Program, launched in 2023, students holding part-time jobs regularly meet with their supervisors and a job coach as they work toward credentials in skills such as critical thinking, problem solving, and decision-making. Students earn one credit toward graduation once they earn three badges, while employers say they're using these sessions "as a framework for performance conversations with students," according to an update from the district.[65] The district reports that in its first year, 144 students earned 115 credits, with participation from 47 employers[66].

Northern Illinois University's Heather Penczak said this kind of employer participation can be painstaking to secure but worthwhile in the long run. "If you find a willing partner to try it out, and then that employer partner talks to other employer partners, that word of mouth and stamp of approval is huge," she said. Over time, she continued, if employers "start seeing students consistently coming into their workplace who have this badge, and they seem to be outperforming others who don't have the badge, then employers will start to get behind it."

Data Collection is Paramount

Lack of reliable data on micro-credentialing outcomes is perhaps the single biggest factor impeding their success at scale. Inadequate data hampers all parties—students, employers, and educators—in making decisions about which credentials to trust or to invest in. Better data would help prune the marketplace of bad products, guide students in choosing credentials of proven value, and offer a proof point to employers and colleges considering how to assess a credential's worth. Better data could also help make the case for micro-credentialing as a universally beneficial approach to teaching, rather than a niche strategy for "struggling" students. "If we do research the right way, we can show that it's best for all students and not just for those who would otherwise be falling out of the pipeline," said the Aurora Institute's Jennifer Kabaker.

Better data would help prune the marketplace of bad products, guide students in choosing credentials of proven value, and offer a proof point to employers and colleges.

While a scientifically rigorous, randomized control trial for every new credential is obviously unrealistic, schools and districts should make data collection on participation and outcomes a key component of their plans for implementation. In addition to basic data on uptake, completion, and percentage of awards claimed, schools and districts should also tally data on participants' graduation rates, absenteeism, postsecondary plans, and other measures of impact. Better data can help tame the chaos in the current credentialing market by elevating credentials with true value. Rationalizing the marketplace, in turn, will accelerate the standardization and quality control that micro-credentialing will need to become a credible, trusted alternative to traditional diplomas and degrees.

Inflection Point

Micro-credentialing has significant potential to fill gaps in traditional education and to supplement students' skills. Badging frameworks for academic content can unlock new modes of teaching that better engage students, especially those struggling under traditional instruction. Work-based credentials can help teach, assess, and validate non-academic skills that employers find valuable, while industry-recognized awards can impart the technical skills students also need for currency in the job market. Moreover, an overall shift toward skill recognition and competency can help democratize opportunities for workers who might otherwise be overlooked because they lack traditional degrees.

The resulting groundswell of interest in micro-credentialing has led to a nationwide surge of experimentation and innovation. Yet the rush of activity in the field ultimately threatens to limit its utility if a flooded market becomes too chaotic for students, employers, and colleges to decipher. "Ideally, we don't end up in a world where every public school district in the country has their own set of micro-credentials," said Digital Promise's Christina Luna.

The field may indeed be approaching an inflection point, where success depends on the right balance between encouraging innovation on the one hand and, on the other, imposing the standards and quality control necessary to create an ordered market. Though some might argue that the "invisible hand" of the market is enough to create this discipline, a careful, coordinated, data-driven development of micro-credentialing is likely the better approach to maximize the field's potential.

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