A New Education Architecture:

New Goals Learning Experiences and Signals

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GETTING SMART COLLECTIVE

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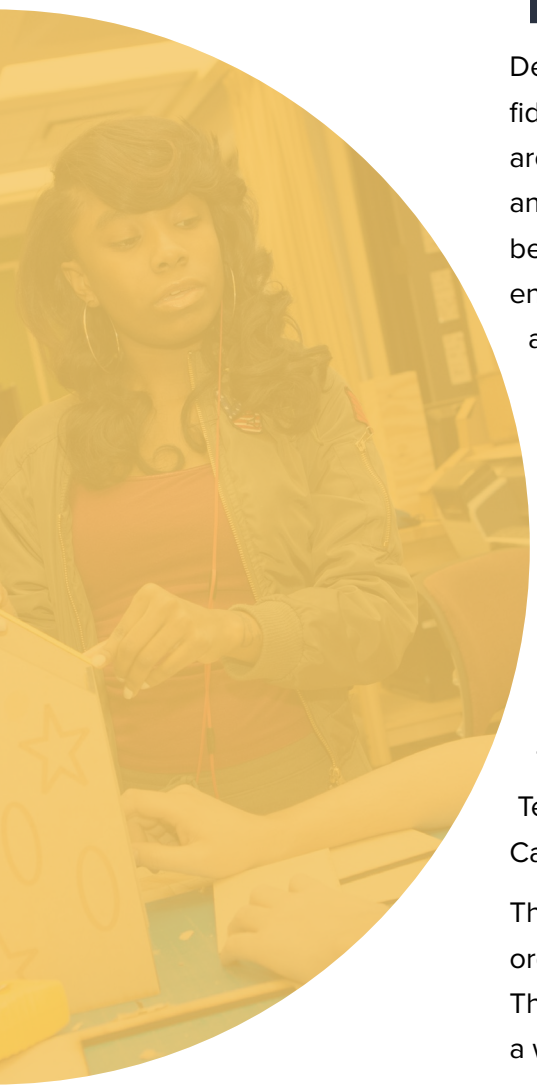
Executive Summary

It's Time to Move Beyond the Time-Based System



Developed in 1906 to standardize the amount of time spent on a subject in bona fide higher education institutions, the Carnegie Unit eventually became the core architectural feature of secondary and postsecondary education in America and much of the world. Initially, the uniform structure provided both efficiency benefits to institutions and equity benefits to learners with transparent college entrance and exit requirements that improved transferability. The convenience and consistency of time as the uniform building block of education structures expanded the Carnegie Unit's reach, calcified its permanence and lured the system into overreliance on it as a proxy for learning.

Similar to the way shipping containers rationalized logistics, the Carnegie Unit promulgated rigid structures and systems that solidified time as the basis for organizing everything—course schedules and graduation requirements, scholarships and loans, state and federal funding, the physical architecture of school buildings, staffing and licensure, even teacher contracts and pensions. In 2023, Russlynn Ali, CEO of XQ Institute, and Tim Knowles, President of the Carnegie Foundation for the Advancement of Teaching, called for a "new architecture" for learning, acknowledging that "the Carnegie unit is not just hard-wired into the system; it is the system."

That hard-wiring remains firmly in place today. The Carnegie Unit is the primary organizing and accounting system for student outcomes and human capabilities. The standard transcript of courses, grades, and degrees has always been a weak proxy for acquired skills and capabilities. It's even less relevant now as a way to showcase the full range of knowledge, skills, mindsets and rich experiences young people need to graduate and enter the workforce ready to tackle the complex challenges and opportunities of our rapidly changing, modern world.

"To prepare our young people for the age of artificial intelligence, high school education has to dramatically transform," Ali explains. "Not only do young people deserve learning experiences that reflect the world around them, the future of our economy—and our country— depends on it."

XQ and Carnegie's Learning Experience Design Brief further speaks to why learning should not be defined by time spent at a desk or logged onto a digital platform. Instead, our goal should be to "replace time-based and classroom-based conceptions of learning with a new education architecture that focuses clearly on student growth and outcomes—the actual knowledge and skills acquired by students."

The System is Stuck

Past efforts to transform education have yielded important lessons, but none have engendered the kind of comprehensive action needed to drive real change. "The standards and accountability movements over the last 40 years left out key ingredients. The basic theory was if we raise standards on the front end and build rigorous accountability on the back end, everything in the middle—curricula, support for teachers and teaching, assessment for growth and improvement—would magically take care of itself...that didn't happen," explains Knowles.

The missing middle of (the first two decades of) standard-based reforms was the capacity to translate higher expectations into engaging experiences--learning models with high quality instructional materials and aligned assessments and teacher professional learning. As the capacity to promote grade level proficiency increased (in curriculum networks and managed networks) it left old course-based structures in place.

"The Carnegie Unit isn't working anymore and hasn't for a long time. Rather than hold on to the past, the communities we partner with want to bring to life a new way of doing school—with powerful learning experiences, new principles for what students should know and be able to do, and modern methods to assess success," Ali adds.

A growing chorus of leaders across K-12, higher education, workforce development and industry acknowledge that the conflation of time and learning can no longer rule the day. From labor market signals to declining college enrollment, there's widespread evidence and increasing acknowledgment that the current time-based system is obsolete.

Evidence of the need for change can be seen in the labor market. Researchers explain in the Harvard Business Review, "In evaluating job applicants, employers are suspending degree completion as a proxy and instead now favor hiring based on demonstrated skills and competencies."

After analyzing 80 million job postings in 2020-2021, America Succeeds identified ten Durable Skills "that include a combination of how you use what you know—skills like critical thinking, communication, collaboration and creativity—as well as character skills like fortitude, growth mindset and leadership."

What's more, the rise of generative artificial intelligence (AI) in work and learning is causing a reconsideration of job skill requirements and learning experiences. In Education for the Age of AI, Charles Fadel details competencies where AI complements and outperforms humans. He urges a "modern emphasis" in addressing the "six C's:" communication, creativity, collaboration, citizenship, critical thinking and character.

A major challenge for school transformation is that skills like these can be developed only through student learning experiences that integrate skill building with acquisition of knowledge. Conversely, deeper learning—the kind of learning that builds the understanding young people need today for application in the real world—occurs only when skill development is integrated with academics.

"We need to teach skills in character and meta-learning in an embedded way in the disciplines," Fadel explains. "These things are the new requirements: curating knowledge, ensuring competencies are taught, and finally, we have also identified what we call drivers. Drivers relate to the motivation of the student and the personalization aspect. They relate to identity, agency, and purpose."

Today's time-bound system lacks a reliable process for describing and measuring student progress toward academic mastery—and falls woefully short of a universal, coherent process for capturing and reporting the full range of new competencies and skills needed. In fact, in many cases, the current system fundamentally prevents well-intentioned educators, leaders and policymakers from building the new architecture for doing so.

SPECIFICALLY, THIS PAPER DESCRIBES A POLICY OPPORTUNITY IN THREE INTERLOCKING AREAS:

New GOALS for learners

New LEARNING EXPERIENCES aligned with those goals

New SIGNALS that track progress and mastery of those goals

There's A Policy Path Forward

This guide articulates a policy path to get the system "unstuck."

This guide articulates a policy path to get the system "unstuck." Through several examples of current efforts across the ecosystem, we offer local, regional, state and national leaders a collection of promising examples, guiding questions and detailed recommendations to guide their next steps.

In collaboration with XQ and Carnegie Foundation, Getting Smart and other partners have begun to build out a transformative framework that honors the legacy of our education system while embracing the latest advancements in learning science, technology and policy.

Ultimately, we need an expanded definition of what students should know and be able to do that fully captures the needs of modern society. Students need valuable, engaging learning experiences that develop those goals. This will require new or transformed models of teaching and learning with new ways to measure, track and report progress to empower learners, educators, and employers with practical and accurate information. This demands an entirely new architecture that breaks the over-reliance on time as the organizing principle and a coherent policy ecosystem with catalyzing forces that encourage these innovations to take root and to thrive.

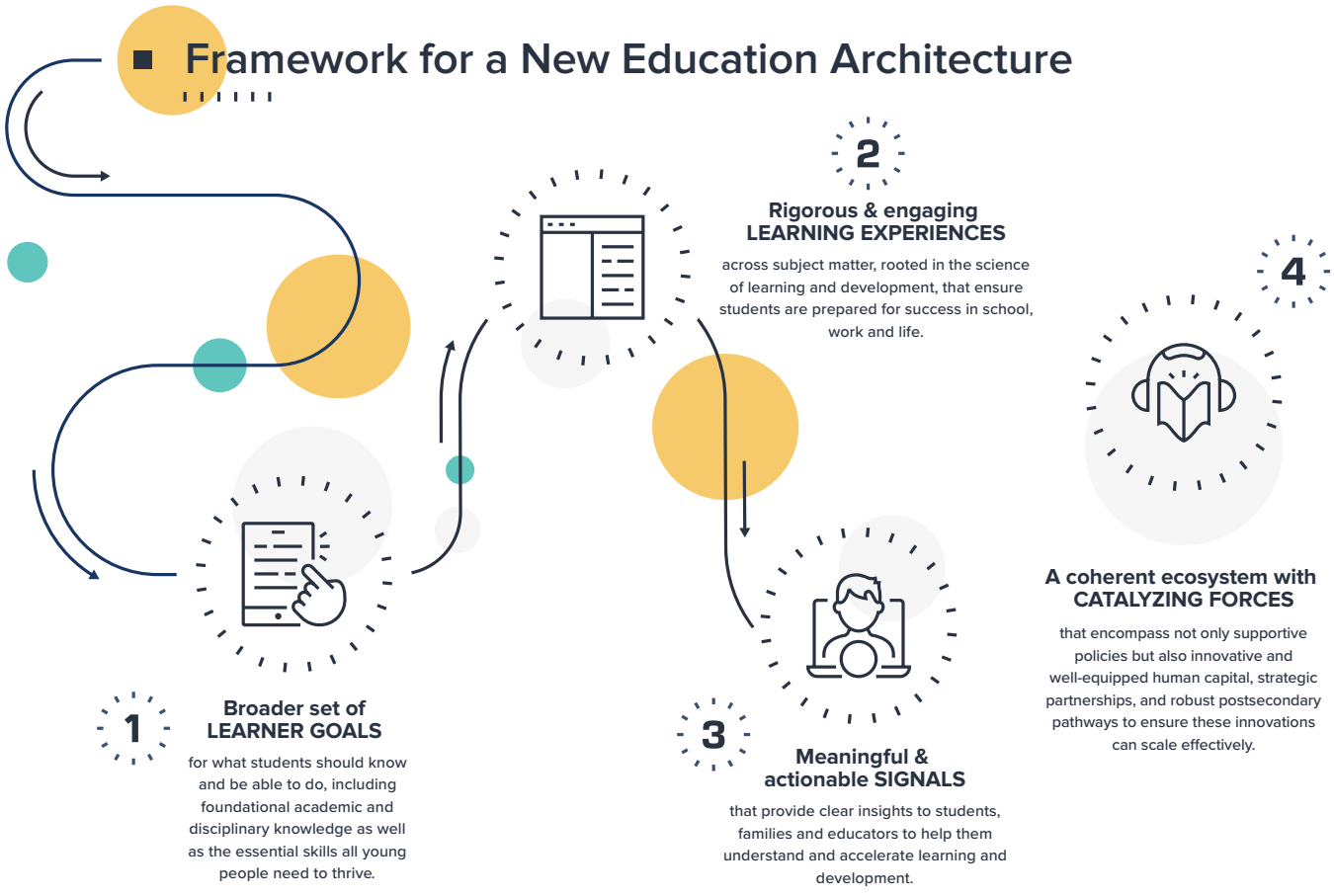
We can build a "new architecture" that prioritizes competency instead of time, empowers powerful learning experiences inside and outside of school, moves standalone courses and credits into the background and enables informed talent transactions (such as enrollment, enlistment, and employment) with transparency and fairness. This guide describes how.

A Policy Opportunity

New Goals, New Learning Experiences, New Signals

Utilizing framing from XQ and Carnegie Foundation the “Framework for a New Education Architecture” integrates three essential, research-backed components that we hope policymakers and leaders will utilize: broad and inclusive goals for what learners should know and achieve, rigorous and engaging learning experiences aligned with those goals and clear, actionable signaling systems to measure and communicate progress. Together, these elements form a cohesive, forward-looking architecture toward a more holistic and impactful approach to learning and doing.

The task at hand is not easy—it requires reshaping goals, crafting new learning experiences, and establishing signaling systems that authentically reflect learner progress. As Brooke Stafford-Brizard of the Carnegie Foundation explains, “These changes will need the support and collaboration of policymakers, educators and communities to take root, sustain and scale.”



Framework co-developed by XQ and the Carnegie Foundation with Getting Smart and other partners; first shared publicly at ASU+GSV 2024.

New Learning Goals

A broader set of LEARNER GOALS for what students should know and be able to do, including foundational academic and disciplinary knowledge as well as the essential skills all young people need to thrive.

Academic rigor and a strong foundation in essential content knowledge and skills must remain at the core of any new educational goals and learning experiences. Students still need to master fundamental areas such as mathematics, literacy, science and history, as these disciplines provide the critical building blocks for all future learning. Engaging students in rigorous content and curricula not only equips learners with the necessary knowledge but also develops their ability to engage deeply with complex concepts and ideas, forming a solid base for lifelong intellectual growth.

Building on this foundation, broader competencies like critical thinking, problem-solving, communication and collaboration enhance and advance academic learning. These skills are not a departure from rigorous content but rather serve to deepen students' understanding and application of academic subjects. When students apply critical thinking to analyze historical events or use problem-solving strategies in complex math challenges, they build and elevate their mastery of core content. Integrating these broader competencies creates a more dynamic and meaningful learning experience, empowering students to leverage their academic knowledge in real-world contexts.

For two decades, business and community leaders have advocated for broader learning goals, including communication, creativity, critical thinking, and collaboration, through organizations such as Partnership for 21st Century Skills (now part of Battelle for Kids). Ten years ago, Dr. Michael Fullan added citizenship and character to the list.

Portrait of a Graduate

In 2017, Battelle for Kids launched a national campaign encouraging communities to develop new learning goals, often described as a Portrait of a Graduate.

"The Portrait of a Graduate (also called Profile of a Learner) is a unique and locally tailored vision that outlines the competencies and transferable skills that support a learner's long-term success. It serves as the guiding North Star for systemic transformation. This collective vision not only defines the essential knowledge, skills and mindsets desired for students upon graduation but also rekindles engagement and enthusiasm among students, teachers, administrators and community stakeholders. It provides strategic direction for a thorough redesign of the overall educational experience, ensuring the growth, adaptability and ultimate success of every learner in our ever-evolving world."

At least twenty states and hundreds of school systems have developed portraits and profiles. They vary in structure and substance, but all share a core idea: stakeholders co-create a vision for their learners based on local priorities and context. For example, the Portrait of a Nevada Learner is framed as reflection questions for learners about growing, contributing and making an impact. As illustrated in The Portrait Model, some systems have also developed a Portrait of a Leader and a Portrait of an Educator to complement the learner models.

There's emerging agreement about learner profiles such as Portrait of a Graduate from leaders as a driving force for building the new architecture. Knowles says they "reveal something fascinating and profoundly important about this alignment: we essentially want the same things for our young people. There is an invisible American consensus about the core purposes of school in our nation, and it is rooted around young people developing not just disciplinary knowledge but essential skills—skills like perseverance, creative and critical thinking, communication and collaboration skills—that predict future success, and are, as we all know, in extraordinarily high demand in the workforce."

Skills for the Future

Skills for the Future (SFF) is an ETS and Carnegie Foundation joint initiative to transform teaching, learning and assessment to bolster and advance the transition to the new architecture. To understand the scope of skills-based education and offer a survey of the existing landscape upon which state and local leaders can now build, SFF reviewed efforts to define and assess competencies across K-12, postsecondary and workforce.

SFF built a composite list of 11 priorities represented by the many existing outcome frameworks (shown and summarized below).

Communication:
Use of context-relevant strategies, domain-specific codes and tools when interacting with others, including active listening, asking questions, synthesizing messages, storytelling and public speaking

Creativity:
Production or development of novel and useful outputs (e.g., understanding, perspectives, ideas, theories, products)

Critical Thinking:
Understanding, managing, and analyzing information and arguments by making sound inferences, recognizing and evaluating assumptions, seeing rational connections, identifying patterns, constructing knowledge and drawing evidence-based conclusions

Curiosity:
The drive to investigate novel stimuli, including situations, people and bodies of knowledge

Collaboration:
Working with others cooperatively and coordinating effectively to achieve collective goals

Digital Literacy:
Creating, consuming, analyzing, and adapting in productive and responsible ways to utilize technology and communication tools in social, academic and professional settings

Growth Mindset:
The belief that talents can be developed through persistent work, learning from risk-taking and mistakes and input from others

Leadership:
Processes involved in directing others' efforts toward achieving individual, group or organizational goals

Perseverance:
Overcoming obstacles and challenges by maintaining focus in the face of negative emotions, pursuing alternative routes to goal achievement and persisting until the task is completed

Self-Regulation:
Regulating one's cognition and affect across different situations to maintain high motivation and energy through pursuing one's goals and restorative activities

Civic Engagement:
Playing an active role in the global and local community and the application of civic values

Among those frameworks considered to inform the Skills for the Future priority skills are the America Succeeds Durable Skills Advantage Framework and the XQ Competencies framework. XQ Institute's effort to transform high schools is based on an expanded set of goals for students called XQ Learner Outcomes that reflect both foundational knowledge and literacies and also that goals for students like becoming "Original Thinkers for an Uncertain World, Generous Collaborators, and Learners for Life." XQ has since launched a set of related competencies and progressions for each Learner Outcome, offering a promising example of the next step for states and schools to "unpack" learner profiles into measurable, trackable progressions toward mastery.

[See textbox on South Carolina for another promising example of steps toward operationalizing a learner profile in action and much more detail on progress monitoring in the section on New Signals.]

Inspiration in Action

South Carolina

South Carolina was one of the first states to adopt a Portrait of a Graduate in 2012 and is often heralded as a promising example of making the portrait both meaningful and actionable by schools and districts. Complete with a robust website with detailed competencies, an implementation guide and an evaluation toolkit, the Portrait continues to drive the state's transition to more student-centered, competency-based learning. States that are just starting have much to gain from South Carolina's example of operationalizing a learner profile and putting it into action.

Policy Guidance for New Goals

Context matters when developing a relevant and authentic profile that can serve as the north star for everything that follows. From school leaders to state leaders, when it comes to creating a new and expanded vision for students, whether that's a formal Portrait of a Graduate or a similar learner profile, the essential component is ensuring that the profile reflects the school, district or state's priorities —and that it is accurately benchmarked with requirements for higher education institutions and employers.

Recommendations & Next Steps

- Strengthen academics and preserve high expectations in core content areas like math, science and literacy while integrating broader competencies. Ensure these standards also explicitly incorporate critical thinking, problem-solving, and communication skills as part of the learning outcomes. For example, states can look to Massachusetts, which has adopted rigorous academic frameworks that embed analytical and applied learning skills across subjects. Policymakers should support resources and professional development for educators to design lessons that simultaneously advance content mastery and broader competencies.
- Author, adopt or adapt a learner profile for your school, district, region, or state. Start with a review of existing profiles such as Portrait of a Graduate and Skills for the Future.
- Invite stakeholders to the table who reflect a cross-section of your community's perspectives and points of view. Consider leaders and community members from early to higher education, business/industry and workforce development, and civic, community and professional organizations. Check out Vermont's Building Your Steering Committee guide to drive this work.
- Look for and learn from success stories for inspiration. District-level and school-level leaders can partner with other districts to learn from their experiences in creating their profiles, especially if local contexts are similar. State leaders can learn from other states, acknowledging that significant efficiencies often come from starting with an informed perspective rather than from square one.

- Begin with the end in mind, planning for implementation from the beginning and weighing the pros and cons of your approach. For example, several states that developed a Portrait of a Graduate made them optional because some districts had their own learning goals and assessments of broader skills are still in development. However, that invitational approach can leave districts needing clarification on how to adopt and operationalize broader goals.
- Think holistically about core content knowledge and skills, new learner goals and related competencies, knowing they will necessitate the design of new learning experiences and ways to assess, measure and report progress toward them. All of this will require robust support for educators and thorough change management strategies for leaders.
- We'll dive into each of these in the following two sections.

Guiding Questions & Considerations

- Are there existing learner profiles that you can adopt or adapt that accurately and authentically reflect what you want for students in your school, district, city, region or state?
- Who are the primary stakeholders that should be involved in developing or informing decisions around the learner profile or portrait?
- How will students shape and inform the vision for new learner goals?
- What lessons from other states or regions can be learned that apply to your local context?
- What is the plan for implementation? Will the learner profile be mandatory or optional? What resources will you need to create to ensure adoption and guard against ambiguity?
- How are you thinking about the learner experiences and new signaling systems you will need to create as a next step? Are you planning for the need to monitor and measure progress through new and better forms of assessment?
- How are you supporting educators and building staff capacity in this early stage? And how will that support continue and evolve?

New Learning Experiences

Rigorous & engaging LEARNING EXPERIENCES across subject matter, rooted in the science of learning and development, that ensure students are prepared for success in school, work and life.

Setting new and broader goals for students will only get a school, district, region or state so far. If we want students to reach for and achieve those goals, we have to design learning experiences that enable them to master the competencies and demonstrate the skills within them. The emphasis on "experience" here matters.

Dr. Tim Dasey notes in Wisdom Factories, "Human value will increasingly lie in wisdom-oriented skills such as critical thinking, creativity, communication, and the ability to navigate complex, multifaceted problems." He describes that the challenges and complexities of the modern world will require more abstract thinking and wisdom gained through actual experience, rather than passive absorption of information.

Dasey recommends:

- **Prioritizing Student Agency:**
  Give students more choice in what and how they learn, recognizing that engagement is crucial for developing wisdom and that the right brain resists external control.
- **Organizing Teaching Around Complex, Multidisciplinary Challenges:**
  Replace siloed, time-bound, subject teaching with holistic, real-world problem-solving that requires integrating knowledge from multiple domains.
- **Embracing Games and Simulations:**
  Utilize games as a primary tool for accelerating experiential learning and developing wisdom-oriented skills.
- **Rethinking Assessment:**
  Move away from standardized testing of knowledge to assess both understanding of foundational knowledge through more holistic evaluations that integrate problem-solving ability, creativity and other wisdom-oriented skills.

Building skills for the future requires rigorous and engaging learning experiences in New Pathways linked to opportunity. These deeper learning experiences develop essential knowledge, skills and character and build what Charles Fadel calls “the Drivers” of motivation, purpose, agency and identity.

Put another way, learning experiences must have value for the learner. This isn’t about the standard march through the typical set of 50-minute standalone courses across a 7-bell day. Instead, students need deeper learning experiences that bring the learner profile to life—offering students opportunities to develop foundational content knowledge and broader skills and competencies in real-world situations in interconnected, interdisciplinary ways both inside and outside of the traditional school day and traditional school building. Schools should be high-agency and high-interest environments with high-value, intellectually-challenging learning experiences, rather than compliance-focused spaces that give students few if any opportunities to identify important and interesting problems.

New and novel learning experiences are particularly relevant for adolescent and teenage brains. Learning experiences must challenge and push students beyond their comfort zones, encourage them to tackle complex problems, develop critical thinking skills and master academic content knowledge in context. Research shows that students held to high standards and given the necessary support are more engaged, achieve more in subjects like mathematics and science, and are better prepared for college, careers and life. Despite this, a recent survey found that less than half of students currently feel challenged by their schoolwork and, on average, students rate their school’s ability to make them excited about learning as a C+.

The Science of Learning and Development (SoLD) highlights the need for a fundamental shift in education, emphasizing rigorous, meaningful learning experiences that develop fundamental knowledge and critical skills for all students. Approaches like design thinking, inquiry-based learning and project-based learning (PBL) effectively engage students, enhance understanding of core academic subjects, and promote real-world problem-solving. Teachers play a crucial role in this transformation, guiding students through authentic, student-driven challenges that integrate foundational academic content with opportunities for deeper exploration and application.

Of course, the need for engaging learning experiences is nothing new or unrecognized. The field is starting to understand the need for entirely new or wholly transformed schools and systems built upon a new architecture liberated from typical structures of time and space.

There are two strategies to create new learning experiences and expand access to new learning models—developing new schools and transforming existing schools.

Opening new schools is the most reliable strategy to promote powerful learning, but it can be expensive, slow and disruptive. School transformation requires sustained leadership and strong support. Both new schools and transformation efforts require a coherent learning model starting with design principles (below) and including an outcome framework, quality instructional materials with aligned assessments and teacher professional learning. New schools and transformation efforts may be scaled in platform networks that include school coaching and technical assistance.

Design Principles Set the Stage for New Learning Experiences

There are several existing sets of design principles to guide the creation of new or transformed learning experiences that leaders can put to work for their school, district or state.

Getting Smart distilled a set of learning design principles: accessible, personalized, purposeful, joyful, authentic and challenging.

Digital Promise says, "Powerful Learning is personal and accessible, authentic and challenging, collaborative and connected, inquisitive and reflective."

Transcend's Leaps for Equitable, 21st-Century Learning include high expectations,

The Carnegie and XQ Learner Experience Initiative offer a checklist and detailed descriptions for "learning experiences that prepare young people for all the future has to offer" that describes them as "high-interest, multi-dimensional, authentic, rigorous, project-based and expansive in its use of time and space."

To ensure that all students have access to new learning experiences by the end of the decade, every region should sponsor a combination of new school development and school transformation, drawing on inspiration and lessons learned from past and current initiatives. Following are examples of new and transformed school networks.

New Schools

About one in three students in the U.S. attended a new public school created during the last three decades, according to a Carnegie Corporation report.

New school development has been an impactful change strategy. Because school improvement typically yields better but not different results, new schools are an essential way to introduce new learning models.

“The schools of the future that our society needs won’t come from transforming our existing schools. They’ll have to come through launching new versions of schooling from new value networks,” explains Thomas Arnett of the Christensen Institute.

While the majority of roughly 35,000 new schools opened in the last 30 years were an extension of existing learning models in new facilities, more than a third were intentional efforts to introduce new learning models as part of regional initiatives, school district innovation, voluntary networks and managed networks.

Regional Initiatives

Here are some examples of regional initiatives with school systems introducing new models, often with state and philanthropic support.

- New York City opened more than 600 new schools (while closing dozens of failing schools) during the Bloomberg administration (2002–2013).
- The Texas High School Project (which became Educate Texas) sponsored new school development, resulting in more than 200 early college high schools and dozens of STEM-focused charter schools.
- New York City and IBM partnered to create P-TECH schools that added high tech work-based learning to the early college model. There are seven P-TECH in New York and more than 100 nationwide (with most in Texas).
- SparkNC is a collaboration of eighteen North Carolina school districts (benefiting from state support) with modular units of study that stack into eight high-tech pathways supported by work-based learning with business partners.

Innovative Campus Models

These school systems introduced new learning models at an innovation campus (typically a new school or school within a school demonstrating a next-generation learning model leveraging a theme or place-based asset):

- Boston Public Schools opened Boston Arts, Fenway High and Tech Boston.
- Kettle Moraine School District opened Health Sciences, KM Global, KM Perform, KM Connect and KM Explore.
- El Paso ISD kicked off a 2015 turnaround with six new New Tech Network academies, now a dozen.
- Cajon Valley USD opened Bostonia Global, Vista USD opened Vista Innovation and Design Academy and Poway USD opened Design 39 Campus.
- In Kansas City, Park Hill School District opened LEAD Innovation Studio and Liberty Public Schools opened EDGE, a global studies microschool.
- Tacoma Public Schools opened the School of the Arts, Science and Math Institute and School of Industrial Design, Engineering and Art

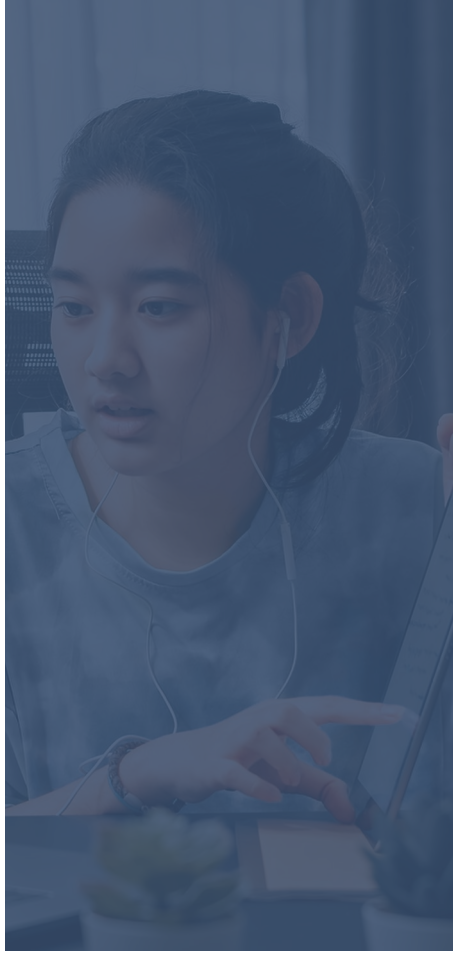
Voluntary and Managed Networks

Developing and supporting a new school model with platform tools and professional learning experiences is challenging and expensive. Developing new schools in networks is a high-reliability approach to innovation (and the most important innovation in American education in the last 30 years).

- Public school networks: Big Picture Learning, New Tech Network, EL Education, Urban Assembly, Internationals, Building 21 and YouthBuild.
- Private school networks: Acton Academy, KaiPod, Prenda, Cristo Rey, Wildflower and Kind Academy.
- Managed school networks: Achievement First, Alliance, Aspire, ASU Prep, Basis, CSUSA, Da Vinci, DSST, Green Dot, Harmony, IDEA, KIPP, Success Academy, Noble, Uncommon and Uplift.

A 2023 CREDO study shows that most charter schools, particularly those in managed networks, “opened with strong results and delivered stronger gains compared to traditional public schools.”

Transformed Schools



There are many paths to transformation, from part-time programs to whole-school models.

Pathway Networks

Thirty years ago, secondary education was based primarily on adopted textbooks. Twenty years ago, they were digitized and supplemented by open education resources. A few nonprofits built career-connected curricula with a blend of hands-on learning and digital resources supported by professional learning.

California Golden State Pathways is a $470M investment that built on the success of the Irvine Foundation-sponsored Linked Learning initiative and shows notable statewide commitment to school transformation.

Project Lead The Way (PLTW) features activity-, project-, and problem-based learning in Engineering, Computer Science and Biomedical Science pathways. Hands-on materials and robotics activities support the curriculum. A cadre of 500 master teachers provides coaching and professional learning experiences for teachers in 12,200 schools.

NAF supports 620 career academics with pathway curricula (including some PLTW), professional learning, and a school model that features work-based learning.

With initial support from the Irvine Foundation, Linked Learning Alliance and ConnectED helped to initiate 690 career academies that combine rigorous academics, work-based learning and comprehensive support.

Texas-based Collegiate Edu-Nation emphasizes career pathways for rural learners and currently serves more than 20,000 students in 21 districts with plans to expand to dozens more in the next year. CEN focuses on heightened college and career aspirations through continuous educational attainment and industry-related certifications.

Learner Experience Networks

Learner Experience Networks are typically part-time or limited to some students but can expand quickly.

Starting 15 years ago, the Blue Valley Center for Advanced Professional Studies (CAPs) expanded access to career-connected Blue Valley Caps learning for juniors and seniors in southwest Kansas City. Its success spurred the development of two learner experience networks:

- The 120 affiliate sites of the CAPS Network share five core values: professions-based learning, professional skill development, self-discovery and exploration, entrepreneurial mindset and responsiveness.
- Three dozen Kansas City metro area school systems convened by the Kauffman Foundation promote Real World Learning experiences (client projects, internships, entrepreneurial experiences, dual enrollment and IRC) in 85 high schools. Principals and teachers learn together through fellowships, school visits and professional learning experiences.

Uncharted Learning supports entrepreneurial experiences in elementary, middle and high school units of study with business partnerships and professional learning. NFTE and JA promote entrepreneurial experiences in and out of school.

Client Project Networks

Client projects offer students real-world experience with value inside a more traditional school or program.

The US Chamber of Commerce Foundation sponsors Employer-Provided Innovation Challenges (EPIC). Seventeen regional intermediaries host challenges and recruit youth participants.

After thirty years of promoting work-based learning through more than 600 career academies, NAF added KnoPro, a client-connected project platform, to extend access across and beyond the network.

Find the Why hosts seven-day challenges to solve real-world business problems. It started with Nebraska employers and is expanding.

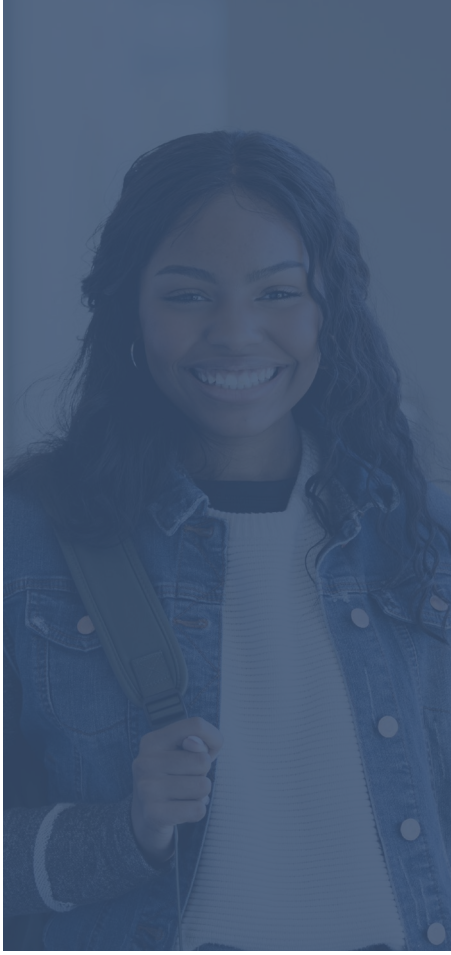
School-wide & District-wide Transformation Efforts

XQ offers profiles of dozens of transformation efforts, including DC+XQ, a multi-year, community-driven partnership between DC Public Schools (DCPS) and XQ to rethink high schools across all of DCPS. Six DC public high schools are on a redesign journey with models that include afro-futurism and entrepreneurship.

The National Association of State Boards of Education (NASBE) launched the High School Transformation State Network in partnership with KnowledgeWorks and Carnegie Foundation to improve alignment across school transformation efforts in education, workforce, and policy.

Policy Guidance for New Learning Experiences

Remember, the goal isn't new or transformed learning for the sake of new or transformed learning; the goal is for every student to reach a broader, future-ready set of goals through learning experiences requiring new or transformed schools or models.



Recommendations & Next Steps

Use the learner profile or Portrait of a Graduate as your North Star, designing learning experiences that create opportunities for students to progress toward and achieve mastery of the competencies and skills your broader goals define. Check out Vermont's Proficiency-Based Graduation Requirements to see how they aligned their Portrait of a Graduate with Performance Indicators.

Conduct a landscape scan of your area's past and current new or redesigned schools or models. Identify opportunities to learn from their challenges and expand on their successes. Education Reimagined offers a map of school transformation efforts across the country. Get creative through incentives and design challenges that engage educators, community actors and business/industry leaders to co-create learning experiences.

Align on what design principles are best mapped to your learner profiles. For example, Education Elements' Personalized Learning Implementation Framework shows 25 essential areas to effectively launch, support, sustain and grow personalized learning. XQ developed a comprehensive school design and redesign process that helps school leaders, educators and communities rethink high school, including a detailed Design Principles Rubric for assessing readiness and describing what rethinking high school can look like in practice.

Encourage or adopt competency-based education (CBE) models prioritizing skills and mastery over seat time. Incentivize these practices in K-12 and Higher Education. For example, learn more about CBE in HigherEd at Southern New Hampshire University (SNHU).

Determine what mechanisms are already in place to support innovation at the district and state levels (e.g., seat-time waivers, credit flexibility and innovation zones) and assess how well they are utilized. For example, West Virginia State Policy allows districts to base course credit on mastery through a waiver. Ohio's Credit Flex Program enables students to earn credit simultaneously across multiple subject areas in a single course. Access Utah's comprehensive overview of statewide efforts to support personalized and competency-based learning, including strategies like waivers, grants and flexibility.

Start somewhere, however small. Conduct pilots. Consider a microschool approach. Have a plan in place for real-time iterating and long-term learning. Fund and support research to evaluate the effectiveness of competency-based education models. The Learning Policy Institute researches competency-based education and offers insights on implementation.

Plan for the impact on teacher preparation and licensure. Shift requirements to align with competency-based education. Look to Colorado's robust educator pathways and programs for inspiration, including teacher residencies.

Spread your message, cast a wide net and create a coalition. Get inspired by examples like Michigan's Future Learning Council (FLC), a cohort of 40 unique school districts and learning organizations working together to shape the future of learning in Michigan.

Identify potential partners who can help you assess readiness for the shift to new learning experiences and environments. McREL offers Guiding Questions to Assess Readiness for student-centered competency-based learning across policy, resources and organizational structures and systems. The Future Ready Schools (FRS) Initiative provides a self-assessment tool called the Future Ready Dashboard for district leaders to assess readiness in leadership, curriculum, technology and professional development with tailored support and guidance based on the results.

Tap Into the Expertise and Experience of Partners Through Their Resources

Aurora Institute's CompetencyWorks blog offers a robust set of resources sortable by issue area, policy level and readiness. Check out "how to get started" for starter packs and district case studies, or search "state policy" for guidance specific to state-level recommendations.

With a particular emphasis on the essential role of educator involvement, The Learning Accelerator provides detailed guidance for districts looking to move towards blended or personalized learning. Start with Conditions for Success and Scale, or explore other targeted resources tailored to your specific role.

KnowledgeWorks offers resources and supports leaders and policymakers at the local, state, and federal levels who are interested in future-oriented learning models like personalized and competency-based education. You'll find detailed reports, case studies and recommendations in their State and Federal Policy Resource Library.

CCSSO hosted a national summit and released Imagining More: How State Education Agencies Can Modernize the K-12 Education System to Put Student Learning at the Center, which delves into actions state leaders can take to foster and accelerate innovation at the school and district level and sets conditions for redefining schools.

Guiding Questions & Considerations

What policies and structures need to change to support the creation of new or redesigned schools? How will you navigate changes to existing structures, such as seat-time requirements and graduation criteria in the meantime?

What are the barriers to creating new or transformed learning models in your district or state? Are there incentives in place to support and encourage innovation? If not, how can you create them?

How will you involve, prepare and support teachers for new learning models? What professional learning, coaching and support systems will be necessary?

How will you ensure that all stakeholders, including students, families, and the local community, are part of designing and implementing new learning experiences?

What processes will you implement to evaluate and learn from pilots or early adopters to make adjustments to improve student experiences and learning outcomes over time?

How will you create sustainable systems for continuous improvement and ongoing innovation?

New Signals

Meaningful & actionable signaling systems that provide clear insights to students, families and educators to help them accelerate learning and development.

The existing core components of the current signaling systems are familiar to anyone who has touched the U.S. education system. Report cards offer a list of courses with letter grades but no breakdown of related skills or competencies. Students fill their schedules with standalone subject-based courses aligned to graduation requirements based on seat time rather than the needed skills and experiences. Transcripts are the standardized attempt to capture the complete picture of a student's educational journey through a list of the completed courses alongside final grades, with today's rampant grade inflation making GPA an even weaker representation of capability. As adults, resumes are user-generated, unverified lists of degrees and experiences similarly lacking in descriptions of knowledge, skills or strengths. The entire signaling system is obsolete—a relic of the time-based, Carnegie-unit-dependent architecture.

It's time for a new signaling system that supports the information needs of all stakeholders. One that helps learners communicate their capabilities and helps employers determine capability in context.

As the primary architecture of schooling, course-taking must move into the background as learning experiences—pathways and growth progressions and their related skills assessments—become the priority. Reporting must shift from grades earned in time-bound courses to accumulating skills through meaningful experiences with value. A mastery tracking system is needed that monitors progress toward learning goals with verifiable credentials that signal to learners, their families, their teachers and future employers what experiences they have had, what competencies they have demonstrated and what skills they have mastered inside and outside of school.

> We must create and credential valuable new learning experiences (including internships, client projects, and entrepreneurial experiences) inside and outside of the traditional school day and physical school spaces.

New Signaling Systems Require New Assessment Systems

New signaling systems necessitate better assessments of broader goals. It's not nearly as simple as it may sound since monitoring and measuring progress toward and mastery of skills and competencies requires a complex combination of formal and informal as well as formative and summative measures.

Learners in competency systems must not only understand their long-term learning goals but also know what steps they will take and what learning experiences they will require to get there. They set their intermediate goals, assess their progress and use teacher and automated feedback to improve performance. Teachers in competency systems must be equipped to differentiate learning experiences, provide informed real-time support and make mastery judgments based on multiple assessments and growth over time. Performance assessments must be embedded in complex tasks and projects. Immersive experiences need to be adaptive and provide real-time feedback.

AI is increasingly recognized for its potential to unlock new and better assessment forms, particularly in enhancing feedback mechanisms and improving student experience. AI-driven assessments can also shift the focus from traditional standardized testing to more dynamic, formative assessments, allowing for a deeper understanding of student learning and progress.

> The shift to monitoring progress is underway. In 2022, DQC reported that nearly a dozen states had begun transitioning to "through-year assessments."

Through-year assessments, or progress monitoring systems, combine ongoing interim and traditional summative assessments into a unified structure. Interim assessments provide timely, actionable feedback to teachers and families, enabling them to support students' learning in real time. At the end of the year, students receive a final summative score that informs students and satisfies accountability requirements. Key advantages include faster results, more valuable data for adjusting instruction and a focus on growth. States, including Alaska, Georgia and North Carolina, have leveraged federal money to establish these systems and others, including Texas and Virginia, have established these systems through legislation.

Comprised of schools, districts and out-of-school organizations, the Mastery Transcript Consortium (now part of ETS) promotes mastery-based learning models and competency-based signaling systems. The "Mastery Transcript" showcases a student's abilities, learning achievements and personal growth. These transcripts emphasize holistic development, focusing on critical thinking, creativity, collaboration and other essential skills for lifelong success, instead of reducing performance to a single grade or GPA. Instead of a list of courses and grades, learners share their competencies with colleges and employers. This spring, over 500 colleges accepted learners applying with the Mastery Transcript.

The Education Futures Council (EFC), formed by Stanford's Hoover Institution last year, is the latest coalition to call for "a new operating system" for public education in their culminating report. The report describes a comprehensive new approach prioritizing educational mastery where "student progress toward and attainment of a broad set of clearly defined outcomes must galvanize and drive the new design." EFC recommends:

- A new kind of "report card," or student record with comprehensive measures and metrics of performance, including those that measure student agency and ownership of learning, makes typical grading and reports obsolete.
- Robust student performance monitoring systems, filling current gaps with generative AI.

Collectively, these efforts show growing awareness and recognition of the need for a new architecture and provide evidence that policymakers and influencers at the local, regional, state and federal levels play a critical role in moving the field from vision to reality.

Assessing Next-Generation Durable Skills

Over the last five years, significant efforts emerged around the importance of durable or transferable skills. Whether in school, district or state efforts around Portraits of a Graduate or the increasing importance of these skills across higher education and the workplace, these skills are proving to be of high value for learners.

Early evaluation efforts include public initiatives that pioneered this shift towards performance assessments (critical elements to evaluating durable skills). While these efforts primarily addressed standards, they emphasized the need for more authentic assessment.

- New York Performance Standards Consortium (NYPAC): The NYPAC is a comprehensive and long-standing Performance Assessment Consortium. Teacher and learner-directed learning experiences, professional development, performance assessment tasks and external/internal validation via rubrics across all discipline areas.

- California Performance Assessment Collaborative (CPAC): This California initiative convenes educators, policymakers and researchers to develop authentic assessments that support student learning. CPAC uses performance assessments, such as projects and portfolios, to measure applied knowledge and 21st-century skills.
- Performance Assessment of Competency-based Education (PACE): New Hampshire's PACE focuses on deeper learning through a competency-based approach. It blends local, common and state-level assessments to promote critical knowledge and skills.
- Performance Assessment Resource Bank: Hosted by Envision Learning Partners, the resource bank is a database of performance assessment examples built through a collaboration of the Educational Policy Improvement Center (EPIC), the Center for Collaborative Education (CCE), the Literacy Design Collaborative (LDC), Envision Schools, Summit Public Schools and others.
- Skills for the Future: The Skills for the Future Initiative is a joint endeavor of ETS and The Carnegie Foundation for the Advancement of Teaching to radically transform education from a time-based to a competency-based system undergirded by measures that capture evidence of what's most important for success in high school, postsecondary education, jobs in today's economy and jobs of the future.

For a summary of Transferable Skills Performance Assessment Initiatives (K-16), Workplace Initiatives and other initiatives, see Nate McClennen's Next-Generation Durable Skills Assessment summary.

Learner Employment Records (LERs)

Learner Employment Records (LERs) are emerging as a powerful tool to bridge education and employment by capturing a comprehensive, verified record of an individual's learning experiences, skills and competencies throughout their lifetime. Although there are some small, productive efforts, we can unlock momentum by thinking about LERs as the next logical step in building the new architecture for the future of education. When we replace traditional transcripts with learning and experience records, we increase access and value to higher education and employers for every student.

District and state leaders can design LERs to provide a comprehensive, lifelong record of student skills and learning aligned with labor market needs and integrated with existing systems. Partnerships with employers, higher education and industry are essential to ensuring that LERs are recognized and valued. Equity, access and clear verification processes are critical, as is continuous evaluation, in order to improve the system. Adequate investments in technology and infrastructure are necessary to scale LERs, which should ultimately support new goals, new learning experiences and new signals holistically.

Policy Guidance for New Signals

When considering alternatives to traditional signals and embracing more modern tools for assessing and communicating student progress, district and state leaders should focus on coherence and alignment between the new learner goals, new learning experiences and new ways to track and communicate progress toward them.

Aurora Offers State Policy Guidance for New Signals

Aurora Institute's report, Going Beyond the Traditional: Next Gen Credentials and Flexible Learning Pathways, advances policymakers' understanding of the changes needed to facilitate meaningful next-gen credentials and advance state policy to remove barriers with state examples of each.

Develop Next Gen Credentials

Create pilots to plan and implement next-generation credentials and mastery transcripts to ensure all youth can use their skills, education and interests for a thriving future. (ND, UT, VT)

Create Competency Frameworks and Competency

Establish a new Portrait of a Graduate to redefine K-12 graduation requirements into knowledge, skills and competencies. The new graduate profile should be created with input from diverse stakeholders, including students, parents, educators, communities, employers and industry representatives. (20+ states)

- Offer multiple pathways to graduation to align with a holistic graduate profile and establish competency-based frameworks to guide curriculum, instruction and assessment. (ND, NM, SC, UT, VA, VT, WA)
- Move from seat-time to competency-based credits; redefine the Carnegie unit from seat-time to competency-based credits to support anytime, anywhere learning. (NH, OR, IN)
- Support state policy changes to advance personalized, competency-based pathways by hosting a task force to create recommendations, using pilots to begin planning and implementing competency-based pathways. (AR, IA, UT)
- Create a statewide vision for a lifelong, continuous system of learning. (AL)
- Create opportunities for improving and aligning K-12, higher education, career and technical education (CTE) and employment training into competency-based systems to connect and stack credentialing. (AL, RI, WA)

Build Capacity and Infrastructure

- Build coalitions within and around education spaces through schools, workforce, community organizations and government organizations for individualized, competency-based pathways for students. (NM, SC, UT)
- Expand community-driven, regional and cross-state collaboration and advocacy efforts that advance system alignment and progress. (UT)
- Invest in technology infrastructure for next-gen credentials, digital learner records and digital wallets that learners use for lifelong learning and skill building. (AL, GA, ND)
- Invest in modern statewide infrastructure for K-12, career and technical education and higher education competency-based transcripts, degrees, professional licensure and certifications. (ND, UT)
- Build capacity for recognizing and validating learning outside of school. (ME, NH)

Recommendations & Next Steps

Get serious about new and better forms of assessment. Develop and advocate for assessment models that evaluate both content knowledge and broader skills in an integrated manner. This could include performance-based assessments where students demonstrate their understanding of academic concepts through complex problem-solving tasks or collaborative projects and assessments where students demonstrate their skills in various contexts across academic content. Invest in the development and scaling of innovative assessments to ensure students are prepared for both academic and real-world challenges.

Find partners for a pilot and track relevant lessons from current efforts. For example, Skills for the Future is engaging with school systems in five states (Indiana, North Carolina, Nevada, Rhode Island, and Wisconsin) to develop and pilot assessment systems across their priority skills. Learn how New Hampshire structured and led its Performance Assessment of Competency Education (PACE) pilot to inform a pilot in your state or region.

- Get inspired by states leading the way by developing new signals to demonstrate what students know and are able to do. For example, Ohio's Graduation Seals allow students to develop and demonstrate strengths in areas like college readiness, citizenship, science and biliteracy beyond the traditional high school diploma. Similarly, New York offers a Civic Readiness Seal, among others. There's also a national Seal of Biliteracy.

Revise graduation requirements to align with the new learning experiences inside and outside of school and incentivize participation. Tennessee's Work-Based Learning Framework promotes partnerships between schools and local businesses for experiential learning that counts toward graduation. Michigan launched the "Marshall Plan for Talent" grant program to support collaborations between educators and employers in 2018. Work is underway to redesign the Indiana diploma.

Adopt LERs as a public utility that serves both education and workforce needs. Collaborate with local, regional and national employers to ensure the skills and competencies reflected in LERs align with the demands of the labor market and the needs of the evolving industry. Use LERs to help students navigate career pathways, apprenticeships and transitions into the workforce by clearly documenting competencies critical for specific industries and career fields. Colorado has integrated LERs into workforce and education initiatives to enhance career readiness and streamline skills-based hiring.

> Indiana has actively explored LERs to support skills-based education and employment pathways, aligning with state workforce development goals.

Define the purpose and scope of LERs to capture a broad spectrum of learning experiences, competencies and skills. Emphasize academic achievements and technical skills and align them with learner goals and work-based experiences that employers value. Include formal education (e.g., courses, degrees) and experiential learning (e.g., internships, microcredentials). States should promote skills credentialing and encourage workforce adoption of LERs alongside educational applications by engaging employers and higher education institutions in LER design and recognition. This ensures employers value LERs as legitimate representations of skills. Access resources from the LER Accelerator Coalition (supported by key organizations such as the American Council on Education, EDUCAUSE and the Association of American Colleges & Universities) for support.

Guiding Questions & Considerations

- When developing new signaling systems, how can you ensure they reflect students' mastery of skills, knowledge and competencies? How will they reflect a broader range of skills, showcase mastery over time and provide a clearer picture of student learning and growth?
- How can you ensure these new signals improve outcomes, drive equity and expand educational opportunities for all students? How can you design the system to avoid perpetuating disparities?
- How will external stakeholders (colleges, employers, etc.) understand and value alternative transcripts? How will you work with higher education institutions, employers and other stakeholders to ensure they recognize and value credentials, badges and new forms of transcripts? What partnerships and communication strategies will be necessary to ensure their acceptance as legitimate indicators of achievement and capability?
- What is the role of technology in supporting alternative transcripts and credentials? What digital infrastructure is needed to issue, track and manage badges, microcredentials, or competency-based transcripts? How will these systems integrate with existing learning management systems (LMS) and student information systems (SIS)?
- How are you accounting for the various needs that must be simultaneously met? Do your signalizing systems equally inform and benefit learners, their families, teachers and employers?
- What changes to district, state or federal policies will be required to enable the widespread adoption of these alternative credentials? For instance, will new state-level graduation requirements be needed, or will policies around credit hours or seat time need revision?
- What scalability and sustainability challenges do you anticipate? What challenges might arise across different schools and districts?
- What can you learn from previous efforts in your state or region? Who will you tap for expertise and support?

Conclusion

Building A Coherent Policy Ecosystem

A coherent ecosystem with CATALYZING FORCES to encourage innovation to scale effectively.

Too often, even the most innovative schools and systems are pulled back into the gravitational status quo due to inadequately leveraged forces or systemic barriers. Catalyzing forces act concurrently and synergistically to break this inertia, allowing transformative practices to take hold and flourish.

The time has come to transcend the century-old, time-based system that has long served as the foundation for American education. While the Carnegie Unit brought standardization and structure, systemic overreliance on it has stifled innovation and prevented educators from fully addressing the dynamic needs of today's learners. The future demands a competency-based, learner-centered approach that prioritizes mastery and combines rigorous academic foundations with essential skills for the modern world.

Moving forward, leaders must rise to the challenge of creating a coherent policy ecosystem that enables this transformation.

Catalyzing a New Educational Architecture

Think systemically about education and workforce development. Foster collaboration between the education system and workforce development to create a seamless transition from high school to adulthood. Develop learning experiences that combine and align academic learning with the broader set of skills and goals to better prepare students for the modern workplace and economy.

Build for flexibility. To avoid creating a new but equally rigid architecture, stakeholders must establish a more flexible and adaptive educational system with iterative processes that allow for regular updates based on emerging research and workforce needs.

Approach the shift to mastery holistically. To combat the risk of developing disjointed skills assessments, educational institutions should implement competency-based frameworks emphasizing skills' interrelatedness. Encourage programs that promote deeper learning rather than a superficial collection of skills. Design new and transformed learning environments that provide experiential and interdisciplinary learning opportunities, such as rigorous client projects and internships inside and outside school.

Establish incentives across the ecosystem. When creating the policy environment for innovations like these to thrive, "permission" isn't enough. Eliminating barriers to innovation is one thing, but incentivizing participation to get to adoption and scale is another. Policymakers should create incentives and funding mechanisms that reward innovative practices and give educators support and recognition for developing and adopting new methods. Engaging families and communities in this process can also enhance motivation and participation.

Align accountability with innovation. Consider how federal policies should evolve to support and incentivize new goals, learning experiences and signals. By creating the space for innovative assessment practices and providing guidance on implementing them effectively, federal agencies can facilitate and accelerate the transition to a new architecture.

Minimize the challenges of a dual-track system. While transitioning to new goals, experiences and signals, it will be crucial to address the challenges of maintaining dual-track systems, such as both a traditional and a mastery-based transcript. Everyone must work together to develop practices for reporting progress in a way that is understood across both current-state and desired future-state systems. Failing to do so will only double the burden across the system, perpetuate "innovation fatigue" and ultimately thwart progress toward co-constructing new signals.

While our existing system lacks the capacity to measure and support the development of the full range of competencies that young people need to thrive, all the pieces are in play to change that. By aligning new goals, learning environments and signals, we can build a more coherent and future-forward system with value to everyone it intends to serve, from students and their families to future employers.

GETTING SMART COLLECTIVE

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