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A Promise for Equitable Futures:
Enabling Systems Change to Scale Educational and Economic Mobility Pathways

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About the Authors

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About Aurora Institute

Aurora's mission is to drive the transformation of education systems and accelerate the advancement of breakthrough policies and practices to ensure high-quality learning for all. Aurora is shaping the future of teaching and learning for more than 14 million students through its work in policy advocacy, research, and field-building/convening. We work on systems change in K-12 education, promote best practices, examine policy barriers, and make recommendations for change. Aurora has a national and global view of education innovation and lifts up promising policies and practices that yield improved outcomes for students. Aurora envisions a world where all people are empowered to attain the knowledge, skills, and dispositions necessary to achieve success, contribute to their communities, and advance society.

Suggested Citation

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EXECUTIVE**SUMMARY**

Fewer than one in five American students follow a clear and uninterrupted path from high school through college to career.[1] The promise of a public education is to prepare all learners to engage in, contribute to, and achieve purpose in the world, both as it is today and as it will be tomorrow. And yet, the American education system as we know it is insufficient to realize this commitment.

The idea of a compulsory high school education was developed in the early 20th century, when the Commission on the Reorganization of Secondary Education proclaimed the purpose of secondary education to be "health, citizenship and worthy home-membership and, only secondarily, command of fundamental processes." Education leaders designed the American high school system to ensure that 20 percent of students would be prepared for college, 20 percent for skilled trades, and that 60 percent of young people would be prepared for "life adjustments" to become fully American.[2]

This paradigm's time is up. Today, complex and compounding forces compel something more than incremental change in public education. Skyrocketing racial and economic inequality perpetuate generational poverty, predominantly for Black, Latinx, Indigenous people, demanding that education do more to create social and economic mobility. The future of work means that a person entering the workforce from low-income households today will likely work for six or more decades, during which time they will change jobs every four and a half years and "upskill" every five.[3] Social changes and advances in technology push more and more learning outside of formal institutions, creating opportunities for dynamic learning ecosystems to take the place of linear, time-bound institutions of schooling.

Call to Action

This report issues a call to action for states to enact a Learner Promise: a commitment that every learner will have access and support to pursue a certified pathway with system-wide opportunities that guarantee entry into a meaningful, chosen career that will build social and economic capital over the course of their lives. Operating under this promise, states would enact systems of governance, policy, and infrastructure to certify that learners who demonstrate competencies in K-12, postsecondary, workforce, and community settings along a supported pathway

will have access to continuing education and a purposeful, living wage career. States would commit to taking the systemic action necessary to disrupt inequities in access, engagement, and attainment for Black, Latinx, Indigenous people, and people from low-income households. And, states would reimagine education not as a linear, time-bound sequence of learning that occurs within institutions of formal education, but as a learning ecosystem. This ecosystem would be an equitable, dynamic, and responsive system in which learners can customize their learning experiences as they navigate experiences across schools, workplaces, and communities.[4]

What might this system look like?

A system of universal pathways would articulate and certify multiple career pathways from K-12 through postsecondary education, career, and continuing education. Pathways would be transparent, universal, and recognized by schools and employers across the state. Each pathway would be defined by a progression of qualifying milestones and recognized credentials, which would certify that a learner has demonstrated a set of competencies across contexts and institutions on the basis of performance assessments. Coordination across K-12, postsecondary, workforce, and community would be enabled by a strong system of shared governance and dynamic, transparent data systems.

A system of universal pathways would focus on the development of critical competencies that support learners' personal, professional, and academic development. It would recognize and support learning when and where it happens using balanced systems of assessment to evaluate and reward deep learning. It would prioritize cultural competency and align teaching with the learning sciences.

In place of learning that is bound by time and institutions, learning would be centered around the learner and transcend the boundaries of school, work, and community. In place of hierarchical decision-making and governance, power would be shared with learners and communities and across sectors. In place of deficit thinking, individuals and institutions would recognize and invest in the cultural wealth and assets of the communities they serve.

Recommendations

State leaders — governors, legislators, and executives — have significant power and leverage to create the conditions in which universal pathways systems can be developed, scaled, and sustained. Using research on systems change as a guiding theory, this report makes 14 recommendations for action.

ORCHESTRATE

1. Organize and coordinate state-level and regional pathways by creating shared governance structures.

2. Streamline and align planning, funding, and accountability to support cooperative action across sectors.

3. Develop integrated, transparent, and learner-centered data systems, including a universal learner record, to support cross-sector coordination and empower learner agency.

4. Build a knowledge-sharing ecosystem by facilitating structures for shared learning, improvement, and sense-making.

INNOVATE

5. Stimulate innovation and create incentives that can help regions develop and oversee pathway systems.

6. Build infrastructure that enables continuity of learning from K-12 through employment.

7. Enable anywhere anytime learning.

8. Redesign curriculum and assessment to support universal pathways.

9. Invest in innovative, robust, and relevant systems of learner development and advisement.

10. Support and scale innovative approaches to school and program design.

11. Support and scale innovations that modernize and diversify, and prepare the teacher workforce.

ADVOCATE

12. Engage diverse stakeholders to share stories and experiences.

13. Invest in research, learning, and engagement efforts that build knowledge, will, and collective capacity to create universal pathways.

14. Advocate for policy and systemic solutions that will promote social and economic equity.

While talk of paradigm shifts is daunting, the reality is this: it is entirely within the agency and control of state leaders to confront the racial and economic inequities that are built into our traditional systems of schooling, and to create conditions in which all learners can pursue pathways toward social economic mobility. This work is by no means simple. It is, however, urgent, plausible, and within reach.

The goal of Equitable Futures, a project of the Bill & Melinda Gates Foundation, is to build stronger connections and alignment between K-12 schools and education, post-secondary institutions, and employers to improve labor market outcomes and promote paths to upward mobility and economic opportunity for Black, Latino, and low-income young people.

-Equitable Futures

INTRODUCTION

> "The inseparable twin of racial injustice [is] economic injustice."
>
> - Dr. Martin Luther King, Jr, *Strive Toward Freedom: The Montgomery Story*, 1960

As a nation, we have been taught to believe in a story that goes like this: success in college is the way to a good job. Success in high school is the way to a good college, and schools are "equalizers" where motivated, capable youth can achieve mobility along a certain and certified path. The problem with this story is that it is not true. Today, fewer than one in five American students follows a clear and uninterrupted path from high school through college to career. More than 80 percent fall through the cracks at any number of junctures along the way — they do not graduate high school, they do not complete a degree, or they cannot apply the credits and degrees they do earn to a career that provides them with meaning, purpose, and mobility.

A public education promises to prepare all learners to engage in, contribute to, and achieve purpose and value in the world, both as it is today and as it will be tomorrow. Today, technological innovation, rising inequality, and attention to our nation's racist past and present call us to recognize this reality: the American education system as we know it is wholly insufficient to realize its promise. Our education system rests on fundamental inequities in access, quality, and representation, which hold racial and socioeconomic inequality in place. It prefers the narrow learning that takes place within a linear, time-bound progression of academic experiences in institutions of formal schooling, separating and stigmatizing the deep learning that can occur in places of work and community.

It presents students with an unequal and uneven set of choices: a clear but often prohibitive pathway to college, a set of vague pathways that may or may not lead toward a patchwork of possible credentials, or nothing at all.

Yes, graduating high school and finding meaningful postsecondary engagement remain vital to social and economic advancement; more than two-thirds of jobs today require some form of postsecondary education.[5] However, finding purpose and achieving mobility require more than a college degree alone; they are cultivated through deep and applied learning, networks of relational support, opportunities to navigate integrated systems of school and work, and wide-reaching social policies that level the playing field.

Realizing not just the hope but the promise of a public education will require significant and sustained change at the core of our current beliefs, practices, institutions, and systems. Such change must build on clear purpose — understanding the urgency of change — and strive toward clear vision — a picture of education as it might be. The work of enacting such purpose and vision may seem daunting, especially in a moment of social, economic, and political upheaval. However, disruption can compel innovation. Even more: disruption demands innovation. Our country faces unprecedented urgency for economic recovery and social justice, interrelated causes that can only be achieved when we are willing to take bold steps forward and put equity at the center of our work.

WHERE ARE WE? CLARIFYING THE URGENCY OF CHANGE

A little more than a century ago, just 10 percent of American youth attended high school. Demand for secondary education increased exponentially in the first decades of the 20th century, when a confluence of forces created pressure not only for a newly prepared industrial workforce, but also for social organization, categorization, and assimilation. The idea of an American high school education was born during this era. In 1918, the Commission on the Reorganization of Secondary Education proclaimed that the purpose of secondary education would be "health, citizenship and worthy home-membership and, only secondarily, command of fundamental processes." The Commission emphasized and prioritized so-called "general studies" similar to today's conception of a core curriculum, which it required for all students. In 1917, the Smith Hughes Act authorized vocational education, explicitly intended for those students who would not go on to earn a college degree. From the outset, poor youth and youth of color were tracked into vocational programs.[6] By 1945, national leaders publicly recognized that the American education system was set up to ensure that 20 percent of students would be prepared for college, 20 percent for skilled trades, and 60 percent for "life adjustment" that would prepare them to be American.

While the pressures placed on American education have changed dramatically over the last five decades, the fundamental structures of schooling have not. Although we

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hold a compact with the American public that public schools will ensure that all children succeed, we continue to operate in an educational paradigm designed to ensure that some young people are ready for college, some for career, and many for neither.

This paradigm's time is up. Today, social and economic forces demand dramatic and systemic changes within secondary and postsecondary education. While many forces shape this call for change, the most pressing include the urgency of social and economic justice, the demand for systems of lifelong education, and the need for new, diverse ecosystems to replace outdated institutions.

SOCIAL AND ECONOMIC JUSTICE

We live in a time of soaring inequality. Today, Americans in the top 1 percent earn 39 times more than the bottom 90 percent. The nation's top 1/10 of a percent earn 196 times more.[7] While astounding, income gaps are smaller than wealth gaps, and wealth gaps are starkly aligned to race. In 2015, the racial income gap between White and Black or Latinx Americans was $40,000. The wealth gap was greater than $100,000.[8] These disparities are generational: statistically, just two-thirds of young people growing up in the lowest wealth quintile will graduate high school. Fifteen percent will enter college, and 10 percent will graduate.[9] Without intervention, a young person born into poverty is likely to remain in poverty, while one born into wealth will see that wealth grow in their lifetime. Generational gaps are unjust and costly. Economists note that the American economy could be $2.5 trillion larger if racial gaps were closed.[10]

Against this backdrop, the United States is confronting the combined forces of a global pandemic and social movement. COVID-19 laid bare gross inequities and structural inequalities, placing disproportionate economic, health, and educational burdens on Black, Latinx, undocumented, and poor Americans. Viral footage of Black Americans killed by police and civilians awakened or reawakened Americans to the visceral realities of racism. Today, an unprecedented number of Americans recognize the relationship between social and economic injustices and call for change across systems and institutions.[11] These calls for change recognize that racism and inequality threaten the lives of Black and Indigenous people of color, as well as our nation's collective values, democratic institutions, economic sustainability, and global health.

While oppression may be endemic to America's past, it threatens America's future. To move forward, racial and economic equity must be at the heart of all of our systems, including public education; we must continually seek to understand how racism, anti-immigrant sentiment, sexism, homophobia, and other forms of oppression interact in our education system, and how they can be disrupted. This means more than paying lip service to ensure positive outcomes for all learners. It means eradicating historical and persistent inequities: disparities in funding and quality in our schools and colleges; tracking that results in systemic underrepresentation of poor learners and learners of color in postsecondary education and women and people of color in high-earning fields; and the intrinsic biases that live within us all. It also means

actively cultivating intersectional equity in schools: valuing curriculum that reflects and celebrates communities of color; actively recruiting and supporting teachers who represent the diversity within our communities; and integrating counselors and health care workers into institutes of learning and places of work so they can be spaces of wellness and healing.

An equitable education system will celebrate and prioritize communities that have been historically oppressed, recognizing that their health, wellness, and ability to thrive are essentially meaningful and also essential to the future of our country. An equitable education system will advance our nation's social and economic mobility by creating universal educational and employment pathways that not only solve pressing crises and put more people into (or back into) work, but also advance racial equity, build lasting infrastructure for economic mobility, and ensure that representative voices contribute to design and decision-making. This can only be achieved when compelled not only by pragmatic interests, but also by conviction and courage.

LIFELONG EDUCATION

We are living in a time characterized by a "fusion of technologies that is blurring the lines between the physical, digital, and biological spheres."[12] This technological innovation, along with shifts in our geopolitical landscape and advances across scientific disciplines, shapes a dynamic context for human learning, connection, citizenship, and work. Automation and artificial intelligence help shape the future of work: up to 47 percent of jobs in the United States could be automated in the next 20 years alone.[13] So does human longevity; living longer means that the average individual will work for 60 to 70 years, during which time they will stay in any one job for an average four and a half years and will need to "upskill" every five.[14] More work will be virtual, "flat," collaborative, and decentralized; some projections suggest that 60 percent of the workforce could be independent professionals by 2027.[15]

As uncertain as this future remains, here is what we know: a young person entering the workforce today will need to navigate a complex and varied career that will require self-direction and agency, radical collaboration, and continuous learning and development far beyond their high school and postsecondary experiences.

The idea that a young person can complete high school, earn a college degree or vocational certification, and then

enter the workforce prepared to work until retirement is now archaic. As a nation, we need to move toward what has been called the "sixty-year curriculum" or the learning-workplace continuum: a system in which individuals can transition fluidly between the worlds of work and learning over the course of the six to eight decades in which they are part of the workforce.

As uncertain as this future remains, here is what we know: a young person entering the workforce today will need to navigate a complex and varied career that will require self-direction and agency, radical collaboration, and continuous learning and development far beyond their high school and postsecondary experiences.

This will entail very real structural shifts between institutions and systems as well as shifts in mindset. First, we will no longer be able to think about education as a linear and sequential set of experiences in formal schooling. Yes, schools will continue to exist and, especially in early years, will continue to play important custodial and caretaking roles for youth as they develop. However, we will need to begin decoupling learning and time, and allow greater flexibility for learning to happen anywhere anytime. Making it easier for individuals to navigate between work and learning over the course of their lives will require an integration of work and learning: bringing opportunities for work-based learning and exploration into the heart and core of public education beginning as early as elementary and middle school, and bringing opportunities for continued or extended learning into places of work to help individuals upskill on the job. This level of integration will require deep collaboration between institutes of learning and employers that, though traditionally siloed, will need to work together in a new and seamless system. And finally, to navigate between learning and work, individual learners of all ages will need to own the evidence of their learning over the course of their lives. A diploma, degree, or certificate, housed in the institution that issued it, will be insufficient

to represent individuals' continuous development of new knowledge, skills, and experiences. In their place, micro-credentials, badges, and other evidence of learning and work will become new currency in the workplace, necessitating the creation of valid and reliable assessments and open, secure, learner-centered platforms for housing and sharing evidence of learning.

In the wake of COVID-19, the social and economic effects of which will be felt for decades, institutes of learning are likely to undergo massive change. Schools will learn to implement blended delivery models, and colleges and universities will undergo massive changes to their economic models. As they navigate these shifts, schools can and should seek nimble, flexible ways to integrate learning and work in partnership with industry, rather than re-create or resurrect the traditional, sequential pathway from diploma to degree to work. For their part, employers can and should partner with learning institutions, both to help shape the learning experiences they provide and to integrate learning into the core of what it means to be a lifelong member of the workforce.

LEARNING ECOSYSTEMS

Many of the same technological changes that shape the future of work also shape the future of learning. Advances in neuroscience enable learning tools and technologies that augment and enable cognitive engagement. They also call attention to the need for a more robust set of learning outcomes. There is growing recognition that standardized assessment of academic knowledge is too narrow a measure of human learning, which entails cognitive, social, emotional, and identity development. Pervasive technology and an "on demand" culture demand heightened degrees of personalization and learner agency, and demand systems of learning in which individuals and communities can access diverse learning assets and experiences. At the same time that more learning is pushed into distributed and virtual settings, shifts in global geographies and local

economies create a renewed desire for connectivity and emphasize the importance of place-based and community-connected learning.[16] As multiple, dynamic areas of advancement continue to blur the lines between physical, digital, and biological spheres, learning is becoming increasingly personalized, decentralized, and self-directed. It is becoming more closely and urgently tied to personal purpose, fulfillment, connection, and community.

When we understand these changes, we can see the limitations and insufficiencies of traditional education, which is constrained to a linear progression of required experiences taking place in formal institutions of learning. Those who seek an alternative to this way of understanding education can turn to the concept of ecosystems: communities of living beings and nonliving components interacting as a system. Biological ecosystems have been used as metaphors to describe numerous complex systems, including social, knowledge-based, and innovation ecosystems, to name a few. Educators can use biological ecosystems as a metaphor to reconceptualize education as a diverse and distributed network of learning experiences and environments rather than a linear, sequential, and institutionally bound series of learning milestones. Learning ecosystems can be understood as "relationships among learning agents, learners, resources, and assets in a specific social, economic, and geographic context."[17] They are composed of networks of diverse providers that facilitate new learning experiences and pathways to success and are connected by core infrastructure such as governance, credentialing systems, and technology.

In learning ecosystems, learning is organized around individuals rather than institutions as learners chart their own experiences flexibly and fluidly across a variety of settings and providers. These "providers" include schools, workplaces, and communities. Learners can weave their experiences together over time because they are supported by common infrastructure: universal qualifications and credentialing frameworks, common criteria for recognitions of learning, transferable credits and credentials, shared governance, and transparent data systems. Learning ecosystems are able to adapt to changing circumstances so as to remain flexible and resilient over time; systems of governance are sufficiently nimble to respond to changes in communities and industries, which ensure that learners' experiences are relevant to them, and to the worlds of learning and work that await them.

Using an ecosystems lens encourages us to think not only about the sequence of credits and credentials young people accrue in the process of becoming ready for the future of work, but also about the multiple layers of environmental influence that inform how they develop and advance along the way: where they live; their relationships; their communities; the institutions they interact with; and the broad cultural values that shape their perceptions, senses of identity, and beliefs about what is possible. An ecosystem lens helps us to recognize that paths are personal. No two are alike, and each spans the unique variety of learning spaces — formal and informal — that a young person experiences. Finally, an ecosystem lens helps us to think about pathways not as time-bound progressions to workforce participation but as lifelong engagements in developing capacity.

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CALL TO ACTION: THE LEARNER PROMISE

Now is the time to turn the unrealized hope of public education into an actualized promise: that every learner will have access and support to pursue a certified pathway toward a meaningful, chosen career that will build social and economic capital over the course of their lives.

A promise is more than an aspiration. It is a commitment and a guarantee to young people, their families, and our shared future. A promise is a statement of collective rather than individual responsibility; it places ownership for each learner's success not solely on that learner's choices and actions, but also on the leaders and institutions which — through policy, resource allocation, school design, and other acts of system-building — create the conditions in which learners are free and able to pursue pathways successfully. A promise is a statement of universal aspiration achieved through differentiated measures. It names a single, accountable outcome for all learners — educational and economic mobility — while recognizing that, due to historical and present inequities, different groups are owed different resources and experiences to achieve that goal. And, a promise is a commitment to systems change; it recognizes that we cannot merely tinker with institutions and systems designed for the purpose of separating and sorting, and that we need to build new and more equitable systems in their place. Systems change includes but is not limited to the enactment of new laws and regulations. It also includes changes to existing systems of power, relationship, and beliefs.

States have the power and leverage to actualize the learner promise. While talk of paradigm shifts and systemic change is daunting, the reality is this: it is within the agency and control of state executive branches and legislatures to create the conditions in which all learners are guaranteed access and support to pursue pathways. This work is by no means simple, but it is realistic.

This work calls for action. Specifically, it calls for a coalition of states to make the learner promise and guarantee the development of educational and economic pathways at scale. What would this entail?

1. State governors make a public commitment to the learner promise: a call to action, an appeal to hearts and minds, and an accountable guarantee that all learners and families in the state have educational and economic pathways.

2. State governors and legislatures authorize cross-sector, statewide governing bodies to oversee implementation of the promise, and also activate community-based governance across the state to ensure representation and drive essential change at local and regional levels. Governing bodies at all levels are representative not only of multiple sectors — K-12, postsecondary, workforce, and community — but of the cultural and racial diversity of the communities they represent.

3. Cross-sector governing coalitions create and certify statewide competency-based pathways for a diverse set of careers that are viable and important to the state's economy and culture. Contrary to popular conceptions of vocational or career pathways, these include but are not limited to careers in the trades as well as across the sciences, teaching, law, arts, and more. Certification means that pathways are recognized and supported by institutions across the state, and that completing pathway requirements ensures access to subsequent education and employment opportunities.

4. Cross-sector governing coalitions develop statewide, universal qualification frameworks, recognitions of learning, and competency systems aligned to certified pathways. These frameworks define requirements for advancement at multiple milestones along a learner's trajectory, from secondary to postsecondary to advanced and continuing education. By providing a universal and flexible system for certifying learning no matter when or where it happens, these systems enable learners to advance along pathways that criss-cross between school-, work-, and community-based learning.

5. States fund the development and/or expansion of robust, high-quality pathways programs: K-12 school-based pathways; work-based learning such as paid internships and certified pre-apprenticeships; postsecondary pathway programs and partnerships; and others. This may involve funding and technical support for internships, dual enrollment, and institutional redesign.

6. States enact the necessary and essential policies to create conditions for pathways at scale, including the enabling of anywhere anytime learning; development of new curricular and assessment policies; alignment of funding, resources, and incentives across K-12, postsecondary, and workforce; and investments that increase racial and socioeconomic equity.

7. States create or re-create professional systems that prepare educators to succeed in a universal pathways system. This may include new preparatory programs, new systems of licensure, and robust opportunities for embedded learning and professional mastery.

8. One or more coordinating agencies with national reach facilitate a knowledge-sharing ecosystem and continuous improvement community within and across participating states. Within states, these efforts ensure that learning flows freely between communities and state-level actors to drive continuous improvement. Across states, these efforts provide technical assistance, create a community of practice, and leverage lessons learned to advocate for broader change.

THE LEARNER PROMISE FROM LEARNERS' PERSPECTIVES

Jason

When Jason is 12, the neighborhood school he attends launches a career exploration program. One day a month, Jason and his classmates explore a different career field. They meet with professionals, shadow people in local offices, and do projects with local companies and community organizations that are addressing community challenges. Jason also goes to an afterschool STEM program that he loves, where he gets to play around with robotics and coding and other cool stuff.

By the time he is 14, Jason decides that he wants to have a career in medicine, even though he's not sure exactly what kind of role or title he'll want. He just knows that he likes helping people, that hands-on learning is what makes him most excited, and that he loves the time he has spent in local hospitals and clinics. Once Jason and his family reach this decision, the first thing that happens is that he's matched with a mentor. This mentor is a doctor and a researcher and, like Jason, he's also a Black man. Jason, his family, and his mentor Dr. Anderson start talking about once a month, and Jason also gets to spend some time with Dr. Anderson on the job.

Jason, Dr. Anderson, and one of Jason's teachers review the medical sciences pathway. The pathway shows all the different milestones that Jason will need to meet on the way to being any one of the professions available to him on this pathway: doctor, nurse, pharmacist, public health official, researcher, biomedical engineer, and more. These milestones are very clear: they show what competencies — content areas and skills — that Jason will need to demonstrate and how he will have to demonstrate them at different qualifying benchmarks along the way. Jason also looks at other pathways to see which milestones can also be applied to another career path if he decides he wants to change course. For example, there is a lot of overlap with other sciences and even with fields like therapy and social work. Seeing this helps Jason feel confident that he has room to change and grow.

For the first two years of the pathway, Jason is focused on the foundations for the medical science pathway. These are core competencies that set him up for more intense studies later on, including things like science and math foundations, literacy and communication basics, and even some history and social sciences that help him understand how the healthcare system is affected by policy, economics, and issues such as race and class. In addition, one day every week, he does work in different medical settings. These placements rotate so he has a chance to check out different fields. Over the first two years, Jason gets to see eight different fields and eventually decides that biomedical engineering is for him. This is mostly because it blends the things he likes most: helping people by designing new products and tools, and working in a hands-on way.

By the time he is 16, school looks pretty different for Jason. He usually spends about three days per week at his local high school, continuing with his pathway requirements. Another day of the week,

he's at a local community college taking advanced coursework that his high school doesn't offer. A lot of kids from his high school are doing this; because everyone is on a pathway, it is easy to get there via a bus that runs between the high school and community college every day. The other day of the week, Jason is in a paid apprenticeship at a local hospital. Dr. Anderson doesn't work at that hospital, but he still talks to him every few weeks. This comes in really handy when things get hard and he needs encouragement. On the job site, Jason has a workplace mentor who helps him figure out his projects, get his work done, and generally figure out how to navigate this whole new world of working in a medical team. This mentor, Dr. Lucia, usually touches base with Dr. Anderson and even Jason's teachers at the high school once a month.

Jason has to pass four qualifying benchmarks before he can move onto the next phase of his pathway. In the medical sciences field, these are usually written exams as well as performance assessments, and there are a few additional requirements for engineering. It's not totally set in stone when he has to take these assessments, but he and his teachers and Dr. Anderson set goals for when he will take and — hopefully — pass them. Luckily, if he does not pass, it's not as though he has to start all over. He can simply study again and make another attempt.

When he is 18, Jason passes the last of these four benchmarks, which means that he has met all of his high school graduation requirements and — even more excitingly — that he has guaranteed admission to six different programs in the state that offer continuing stages of the medical sciences and biomedical engineering pathway. Jason chooses one that is in the biggest city in the state because he really wants the experience of living in a city for the art, music, and food.

Jason spends six more years in school along this pathway. He spends four years in a college program in the city, where he continues to intern at least two days a week and has to pass six more qualifying benchmarks. After the sixth, Jason is admitted to advanced studies at a partner institution in a location across the state. It takes him two more years to finish these advanced stages and, by the time he does, Jason has been working and studying in the medical sciences field for 10 years.

The advanced institution where he is enrolled has hiring agreements with 10 different biomedical companies, both private sector and public, so when Jason finishes his twelfth qualifying exam in ten years, he is immediately hired by a hospital-based lab that is working on tissue engineering. He loves this because it is incredibly challenging, and because the work he does helps patients who are recovering from injuries, surgeries, and a whole variety of genetic disabilities. He's helping people, and he loves it.

Mariah

Mariah goes to school with Jason. Like Jason, she starts the career exploration program when she is in middle school. Mariah does the same job shadow and career day activities as Jason, but different afterschool and summer programs. Mariah has always loved building and fixing things, so she chooses programs like maker spaces where she can tinker, build, and play. She also loves cars, so she spends a lot of time at her uncle's repair shop learning about engines and car design.

At 14, Mariah decides that she really wants a career in trades. Specifically, she really wants to be involved with building and construction. She loves hands-on learning, and she also loves being creative. She loves drawing, sketching, and imagining things that she could help build. From her career exploration days and shadowing, she knows that it's mostly boys who do this kind of work, but that won't stop her. She meets an awesome mentor, Ms. Marks, who has been in construction and who's the lead in her local union. Ms. Marks makes Mariah feel like she can definitely be in the trades and be great.

The trades pathway includes the same foundational coursework that a lot of other pathways include, with a little more math and science than some. This is important, Mariah realizes, because it means that she could change her mind and switch into a lot of other pathways if she wanted. For about two years, Mariah is focused on the foundations for the trades pathway. She is usually at school about four days a week engaged in these courses, and then one day a week, she checks out different trades options through a rotating trades exploration program sponsored by a bunch of local unions and community-based organizations. She gets to explore all kinds of stuff: welding, HVAC, plumbing, and more. Pretty soon, she realizes that what she loves most is iron-working. It's cool working with metal to make huge buildings and roads and bridges. And, sometimes it feels like art. From her rotation with an iron-working shop she knows that part of the job is to meet with architects and engineers and city planners to dream up and make all sorts of buildings and spaces that people will use for years and years.

When she's 16, Mariah starts her trades specialization. She still goes to school three days a week like most kids her age, and then two days a week, she is in a registered-pre apprenticeship. The pre-apprenticeship is amazing — Mariah works alongside grown-ups, has a workplace mentor who helps her learn the ropes and all the tools, and gets to work on real projects that she can then see in her community. Mariah has to pass eight different milestones in this phase of her pathway — four specific certifications that are required by the trade association before being enrolled in a full apprenticeship, and four exam milestones. The exam milestones are usually a blend of written assessments to show that she has the core academic skills she needs to do complex work and performance assessments that show that she can actually do the work.

By the time she is 19, Mariah has completed all of these milestones. She graduates high school and is automatically admitted into a full registered apprenticeship. She's not sure exactly how long this will take, but it takes most people four years. The local industry defines the apprenticeship requirements — for her, they include 30 hours of work a week alongside a journeyman, coursework at a local community college that offers continuing education in the ironworking pathway, and six more qualifying milestones that she has to pass. While she is doing this work she is making about half of what a journeyman makes, which is amazing for her — Mariah can afford an apartment with a roommate, and she doesn't have any school debt.

When she is 23, Mariah completes the final milestones for her apprenticeship. By this time, she has been involved in the trades for nine years and has completed fourteen milestones. She is a registered journeyman.
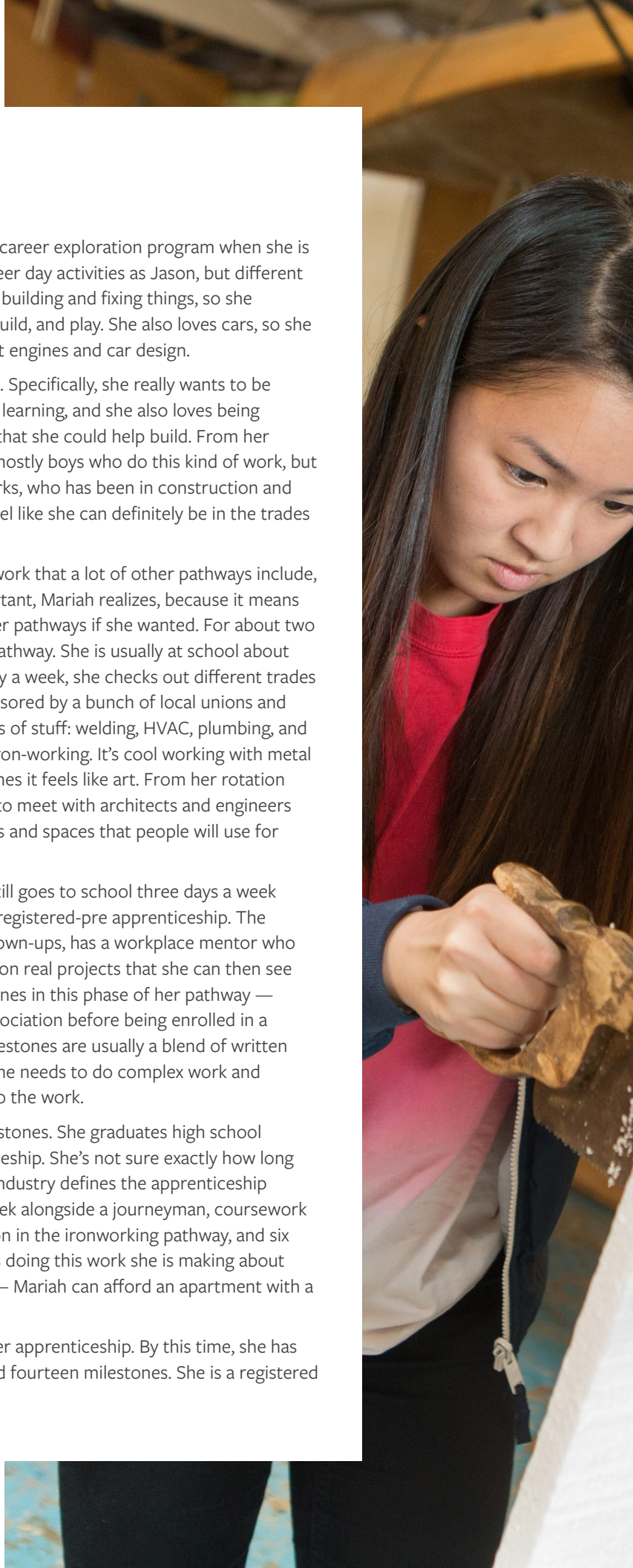
The learner promise would shift the structure and culture of our education system to one that is built around universal college and career pathways that are structured, certified, and transparent. This shift is powerful, but not without risk. First and foremost, pathways systems must be built on a commitment to reject any and all forms of tracking. The risk of pathway systems being used to track students into different career and life outcomes is very real, given that vocational education was designed with the express purpose of tracking students, and that tracking continues to occur in American high schools through biased systems of limiting access to courses, course placement, and advisement. To avoid tracking, state and local leaders must work to ensure equitable access to pathway programs and to courses of advanced study, to deepen and improve systems of unbiased advisement, and to proactively promote the success and advancement of students whose educations have been historically underfunded and undersupported by existing policies and systems.

Second, pathway systems must be developmental, rather than prescriptive, and they must avoid asking young people to make permanent or lasting decisions about their future before they are ready. While career exploration at early ages is powerful, it must be just that: exploration. Successful and equitable pathway programs are aligned with research on adolescent identity and occupational identity development, and do not force young people to prematurely foreclose on a future career path. And, they are structured to allow plenty of opportunity for transfer and transition at all points along the path, particularly in the high school years.

Finally, pathway systems must continue to cultivate and embrace the full range of experiences, interests, and opportunities that shape individuals and communities. An individual who chooses a pathway in journalism or car mechanics or creative writing would not be *only* interested in and supported by those topics. They are dynamic and multidimensional people who benefit from a full range of learning experiences across disciplines and environments. While pathway systems elevate and prioritize learners' chosen career paths and give them new levels of agency to focus and direct their learning experiences, they must also continue to cultivate — often in partnership with community organizations or other partners — a holistic education.

By making the learner promise — by committing to the upwardly mobile futures of young people, especially those who have been marginalized by existing systems — we can increase economic mobility, advance social justice, and expand collective prosperity. We can move toward a future of learning and work in which young people cultivate positive personal and occupational identities and develop critical competencies that help them navigate the worlds of school, work, and community, leading to a meaningful life and career.

The remainder of this work is dedicated to defining what a statewide system of universal pathways would look like, defining the system change needed to create those pathways at scale, and offering concrete strategies for action to move toward that vision.

> By making the learner promise — by committing to the upwardly mobile futures of young people, especially those who have been marginalized by existing systems — we can increase economic mobility, advance social justice, and expand collective prosperity.

ENVISIONING THE PROMISE: UNIVERSAL PATHWAYS

> **Across the globe there is a growing consensus that education demands radical transformation** if we want all citizens to become future-ready in the face of a more digitally enabled, uncertain and fast changing world. Education has the potential to be the greatest enabler of preparing everyone, young and old, for the future, yet supporting learning too often remains an issue for schools alone… As learning frameworks outlining ambitious global agendas for inclusive education and lifelong learning begin to emerge, and as societies become more connected and intertwined, it is becoming clear that society has a collective role to play in equipping people to create meaningful futures, through lifelong learning.
>
> *-Local Learning Ecosystems: Emerging Models*

Achieving the learner promise asks us to shift our thinking: to think of public education not as a linear progression of formal schooling, but as a learning ecosystem in which all young people can pursue a universal pathway toward their future. This new vision is one of integrated, sustainable, and equitable educational communities that enable Black, Latinx, Indigenous, and other people of color to direct the course of their learning and lives along personal pathways leading to social and economic mobility.

UNIVERSAL PATHWAYS

CULTURE & CHARACTERISTICS

LEARNING & DEVELOPMENT

SYSTEMS & STRUCTURES

Learner Centered
Universal Pathways develop agency and identity development, often through relational networks that create cultures of advisement and mentorship.

Flexible and Responsive
Universal Pathways are adaptive to the dynamic needs of learners, families, and employers, as well as to changes in the future of learning, work, and social equity.

Connected and Porous
Universal Pathways connect K–12, postsecondary, workforce, and community settings to help learners navigate pathways across the learning workplace continuum.

Equitable
Universal Pathways reduce over- or under-representation in education and employment, and dismantle historic and systemic barriers to equality. They develop community cultural wealth, including helping learners cultivate social capital.

Competency Development
Universal Pathways focus on the development of critical competencies, including contextualized knowledge and professional and personal skills, which may be universal and/or specific to a learner's chosen pathway.

Anywhere Anytime Learning
Universal Pathways operate with sufficient flexibility to support and recognize learning when and where it happens, which may include but is not limited to school.
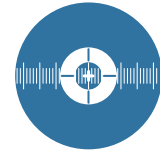
Integrated Programs of Study
Universal Pathways use research-based and responsive approaches to learning and teaching across integrated K-12, postsecondary, workforce, and community settings.

Curriculum and Assessment
Universal Pathways engage learners in flexible curricula that can be facilitated across a variety of spaces where learning happens. Balanced systems of assessment support learning and recognize competencies.

Universal Qualification Frameworks
Universal Pathways are structured and defined through the qualification frameworks with clear benchmarks and milestones that learners must meet and pass to progress.

Universal Competencies and Credentials
Universal Pathways are built around a set of core competencies that define learning objectives. They allow learners to earn credentials and other recognitions of learning that are universally recognized and validated.

Shared Cross-Sector Governance
Universal Pathways are coordinated by state and regional governing bodies that establish vision, build core systems, and support cooperative design and implementation.

Shared and Transparent Data Systems
Universal Pathways use dynamic data systems to support learning and advancement, as well as continuous improvement.

Culture and Characteristics

Under the Learner Promise, universal pathway systems depart from the culture and ethos of traditional education and move toward the culture and ethos of learning ecosystems. In place of learning that is bound by time and institutions, learning is centered around the learner and transcends the boundaries of school, work, and community. In place of hierarchical decision-making and governance, power is shared with learners and communities across multiple sectors. In place of deficit thinking, individuals and institutions recognize the cultural wealth and assets of the communities they serve.

LEARNER-CENTERED

Universal pathways are learner-centered. They develop each individual's agency and ability to navigate pathways that will cross multiple sectors and institutions over the course of their lives. Supporting agency entails conscious efforts to develop young people's personal and occupational identities. It also involves creating strong networks of advisement, mentorship, and support.

Learner agency is the desire and ability to act.[18] In the context of pathways, agency means that learners play an active rather than a passive role in their learning, their work, and their choices about their future. This is different from the traditional paradigm in which learners typically complete common requirements, selected by a district or state official, with little choice or agency in identifying their own purpose or direction.

Agency is a requirement for making informed choices, including but not limited to the choice of a future career. In this sense, agency is connected to learners' occupational identity: their vision of who they want to be in the workforce based on their interests and perceived abilities.[19] Occupational identity is shaped in adolescence when personal, racial, and cultural identity development are actively underway. It can be shaped by exposure to career options, hands-on learning experiences in careers, and participation in professional communities within workplaces. While these exploratory experiences can lead to open and uninhibited occupational identity development, the inverse is also true: the presence of external and internal race and gender biases — as well as very real gaps in access like lack of exposure to careers or career mentors, lack of experience in school-based and work-based learning, or lack of deep and authentic school-based learning — can limit, suppress, or falsely direct learners' opportunities to imagine and pursue themselves in careers of their own, true choosing. Beginning in adolescence or earlier, schools, employers, and community organizations can promote positive race, gender, and occupational identity by working to eliminate biased stereotypes and media messages, and ensuring equitable access to deep learning and career exploration.

Innovation Spotlight: Developing Occupational Identity in STEM

Couragion is "redefining who can succeed in STEM and positively moving the needle to improve the awareness and perception of careers that require STEM skills and competencies." Couragion specifically and proactively focuses on increasing the representation of students of color and females in STEM careers, serving a population that is 65 percent students of color and 50 percent female. Likewise, Specifically, 70% of Couragion role models are female and 40 percent are people of color.

Couragion operates a web-based platform that offers learners the opportunity to engage in career exploration and mentorship, with learning and engagement opportunities that span fourth through thirteenth grades. At all grade levels, units are aligned with national and industry standards, including the American School Counselors Association, International Society for Technology in Education, Next Generation Science Standards, and others.

Couragion's Virtual Exploration program helps students learn about STEM careers through videos, games, quizzes and self-reflection; helps students identify a "best fit" STEM career for their interests; and provides personalized planning plans that help students identify ongoing opportunities to advance their career interests. Couragion offers Pathway Skill Building through work-based challenges and learning units. Challenge topics include, but are not limited to: user-centered design, research & human-computer interaction; data collection, transformation, analysis, & visualization; advanced manufacturing, additive manufacturing, & mechanical systems; engineering ethics, human factors engineering, & sustainable engineering; and cad models & simulations, spatial reasoning & engineering design.

While identity development and agency are personal attributes, they are not developed in isolation: they are developed with support from relational networks that help young people define and pursue personal purpose. These networks may include mentors, advisors, affinity cohorts, and platforms that help learners explore and set goals, make informed decisions, navigate and access decentralized learning experiences, and monitor their learning. Increasingly, individualized learning plans are used to guide student learning. Operating off of integrated data systems, these plans are dynamic and accessible to the multiple stakeholders a young person encounters and engages with as they advance on their path, promoting agency and self-direction. However advanced and accessible these platforms are, advisement and mentorship remain fundamentally relational. Teachers, mentors, family, and peers provide the guidance and love that lift young people up. In equitable systems, advisement is also therapeutic; schools and employers adopt trauma-sensitive approaches, prioritize mental health and wellness, and actively seek to create spaces of dialogue and healing to combat the complex trauma of oppression, which stunts learning, development, and the pursuit of equity.

Networks of mentorship and advisement are critical to leveling the playing field in increasingly complex and distributed learning environments. High-income families are typically able to utilize their influence and social networks to navigate systems and ensure benefits for their children; their privilege helps them navigate school choice, after school programs, internships, and jobs to their advantage. In order to create more equitable access for all learners, learning ecosystems identify, train, and organize individuals and organizations that can play the advisory role of "navigator." This might mean a family liaison who helps families access out-of-school learning, a school-based advisor who helps learners select internships and navigate the college application process, or an advocate who helps families increase their leverage within and across institutions.

FLEXIBLE AND RESPONSIVE

When they are truly learner-centered, pathways become responsive to learner agency. This means that instead of being organized around fixed units of time, they are flexible and dynamic based on each learner's individual choices, development, and progress. Shifting away from a time-based model is, possibly, one of the biggest cultural and operational shifts in the move toward learning ecosystems. Pathways are also responsive to community context and workforce dynamics; they are able to adapt as communities change and as regions move toward the future of work.

The traditional educational paradigm is designed and organized by time: school year, grade level, hours of

Innovation Spotlight: Learning Ecosystems

"**LRNG** is closing the equity gap by transforming how young people access and experience learning, and the paths they take to success. We are working with communities to build seamless work and learn pathways and a true ecosystem of connected learning." LRNG strives to put learners at the center of their own learning and to increase learner's agency through blended opportunities that span school, community, and work.

LRNG is a learning platform that operates in partnership with multiple cities, nonprofit organizations, school networks, and community hubs around the nation. Alongside their partners, LRNG creates and hosts playlists that integrate virtual and in-person learning activities facilitated through a host of community organizations, schools, and other partners. These playlists connect learning opportunities to college credit and career opportunities. In their own words, LRNG is "redefining the boundaries and creating personalized pathways that give learners just the right learning, at just the right time, at just the right place in their lives."

LRNG was founded and launched in 2015. In 2018, they merged with Southern New Hampshire University to expand their reach and better connect learning with college and work. Today, LRNG and SNHU cooperate with local governments, employers, community colleges, library systems, and other partners of formal and informal learning to create competency-based pathways across the country.

study. Increasingly, however, educators and advocates are realizing that time has little to do with learning. Learners develop and progress at different paces; when learning is organized within fixed increments of time, learners can be held back from advancement or, conversely, labeled "behind" when they may, in fact, only need more time to reach proficiency. In pathways, which operate as learning ecosystems instead of linear progressions of formal schooling, learners progress and advance based on demonstration of learning rather than time. Pathways are organized around flexible milestones: universal expectations of learning that follow a common progression but are not necessarily affixed to any day, month, grade level, or age. This way of organizing learning is developmental at its core, and addresses equity by allowing learners different amounts of time to get to mastery based on their preferences and needs.

What might this mean in practice? This might mean that a learner's high school experience is not described in four grade levels and required course credits, but instead by the ability to meet the milestone qualifications for their chosen pathway, be that teaching, electrical trades, law, music, or journalism. Requirements may include foundations-level qualifications that apply to multiple pathways, during which time learners can still explore and transfer between different desired careers. Later, advanced requirements may be more specific to a smaller number of pathways within broad career areas. Some learners may take three years to complete all of these requirements. Some may take five. However long it takes to meet all the requirements, all learners will be eligible for graduation and for admission in the subsequent stages of their pathway, be that an apprenticeship, an associate's degree, or another advanced degree.

Flexibility and responsiveness also require that pathway systems be able to adapt to the future of learning and work, which will continue to evolve. While traditional K-12 education systems are typically responsive to the state-defined requirements of a general education and the admissions requirements of colleges and universities, pathway systems are responsive to the dynamic and shifting future of the workforce and society. Governed by cross-sector entities at state and local levels, pathway options, requirements, and experiences can be amended to ensure that they equip learners for success in their next phases of learning and, of course, in work. This shift requires new ways of operating — new forms of governance, design, and coordination — and also new

mindsets. Essentially, being responsive to the changing worlds of learning and work requires schools to assume responsibility for the success of their learners after they leave (not just for getting them to finish), and requires employers and communities to assume responsibility for shaping the education experiences that future workers, citizens, and leaders will experience.

CONNECTED AND POROUS

Universal pathways are connected and porous. In the traditional paradigm, learning is siloed within formal institutions of learning — schools and colleges — which remain mostly separate from learning that happens in learners' jobs, community programs, and even their families. As learning ecosystems, pathways integrate learning that happens across all of these spaces and recognizes these diverse learning providers as valid and reliable contributors to young people's development.

Universal pathways recognize that schools, colleges, universities, employers, and communities share a collective responsibility for the education and development of all young people. They operate as true ecosystems in which learners are able to navigate, traverse, and be recognized for learning that happens in multiple places. This is a significant shift from the status quo, where learning is equated with "schooling": formal education that takes place within the four walls of a K-12 school, college, or university.

Innovation Spotlight: Learning Ecosystems

Remake Learning is a "network that ignites engaging, relevant, and equitable learning practices in support of young people navigating rapid social and technological change." Based in Pittsburgh, Pennsylvania, and launched in 2007, Remake Learning is an open network that allies people and involves thousands of educators; more than 500 schools and organizations and countless projects share a commitment to three principles which they believe shape the future of learning: learning that is engaging, learning that is relevant, and learning that is equitable.

Remake Learning organizes community resources and supports learners to provide access to engaging, relevant, equitable learning in a variety of focus areas, three of which are highlighted below.

Current projections show that Pittsburgh will have a worker shortfall of 80,000 by 2025, and that its workforce is one of the least diverse among comparable U.S. cities. To address these dual challenges, Remake Learning has hosted a Future of Work Collaborative to strengthen connections between K-12 education, CTE centers, industry leaders, and corporations, and to engage these stakeholders in analyzing "the current state of workforce development, share promising practices, and build the partnerships required to prepare students for a changing world."

The Maker Learning Collaborative is a regional working group that seeks to build on Pittsburgh's legacy as a manufacturing hub. The working group convenes stakeholders to guide and plan regional approaches to making, articulates "pathways to shared prosperity" which defines frameworks for maker learning and advancement, and organizes physical maker spaces in the city to promote access.

Shifting Power in Education Research and Development aims to increase the representation of Black and Latinx educators in developing and disseminating knowledge about the future of work and education. The program positions Black and Latinx teachers to lead research about student learning and innovation by pairing them with researchers across western Pennsylvania.

By operating as a diverse and distributed network of providers focused on common learning experiences and outcomes, Remake Learning offers a prime example of a local and regional learning ecosystem.

K-12 schools continue to play essential roles in educating young people — this does not change. They simply do not play the *only* role. In a pathways paradigm, K-12 schools provide early career exposure, awareness, and orientation throughout elementary, middle, and high school. They foster and support foundational academic competency development in middle and high school to prepare learners with the skills they need to navigate future pathways, including proficiency in subject areas like literacy, digital literacy, and math, as well

assume an important role in the education of young people by offering work-based learning. Often, the public thinks of work-based learning as being an experience specific to learners interested in the trades, but not necessary or required for learners interested in careers that require four-year degrees. According to this narrative, if and when college-bound learners do engage in work-based learning, it is through an optional and extracurricular internship or job that they or their families are required to find themselves. In universal pathways, however, all learners will experience (or at least have the opportunity to experience) high-quality work-based learning that allows learners to develop professional skills and deepen academic skills. Universal work-based learning encompasses a continuum of activities where learners' engagement in the

> Universal pathways recognize that schools, colleges, universities, employers, and communities share a collective responsibility for the education and development of all young people. They operate as true ecosystems in which learners are able to navigate, traverse, and be recognized for learning that happens in multiple places. This is a significant shift from the status quo.

as proficiency in critical cognitive, social, and emotional skills. K-12 school systems offer three- to four-year high school programs of study that ensure access and opportunity for all learners, regardless of prior learning and experience. These programs of study are defined by coherent articulations of qualification benchmarks and milestones, which are defined with partner postsecondary institutions and employers. These allow learners to earn industry-recognized credentials related to regional workforce demand and earn college credit for free through dual enrollment, early college opportunities, and/or advanced course offerings. K-12 schools promote wellness, belonging, and identity development through cohort-based (not necessarily age-based) programming that provides ongoing community and connection.[20] They engage in deep learning that integrates academic, professional, and personal competency development in applied contexts. And, they ensure early intervention systems, personalized supports, and strong systems of advisement to keep learners on track.

Employers across a diverse array of industries and careers

workplace intensifies over time from awareness through exploration, preparation, and training.[21] Career preparation and training can be facilitated through paid internships with local employers, youth apprenticeships, and/or early college high school models. All work-based learning should offer learners the opportunity to earn college credit and/or industry-recognized credentials that can be translated and transferred to future learning and work.

Quality work-based learning is immersive, situating learning "within the context of a community of practice at a worksite, offering an authentic setting for young people to interact with and learn from more advanced professionals."[22] Work-based learning integrates technical and academic learning; learners might engage in projects at school that are designed to develop and deepen the professional content skills being developed at the worksite and might deepen academic skills through application in work. Work-based learning environments develop young people's ability to navigate the workplace and assimilate to workplace culture, while also emphasizing and supporting positive youth development. Employers and industry

Innovation Spotlight: High School Internships and Work-Based Learning

Future Focused Education (FFE) is a nonprofit organization that "invests our best ideas in underserved students and communities for a healthier and more prosperous future." FFE serves as the incubator and network hub for the Leadership Schools Network (LSN), a network of high schools in Albuquerque, New Mexico, focused on serving students who are off track to graduate or who have dropped out of high school. Together, FFE and LSN know that students who have been failed by traditional approaches to school can be successful if given the chance in the real world. Based on the belief that "experience is the great equalizer," FFE offers the X3 Internship: a program that enables all learners to earn paid internship experience. X3 internships provide learners with the opportunity to be engaged and successful in the workplace and acts as a powerful catalyst for positive development, advancement, and life success.
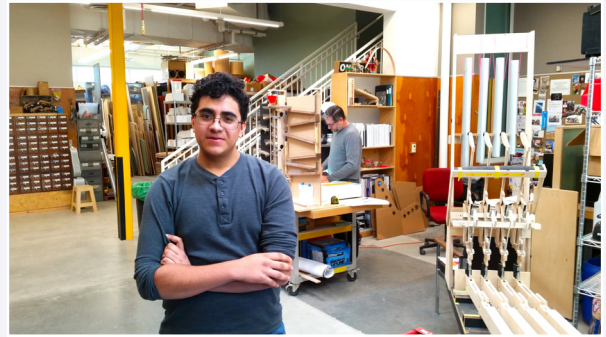
FFE seeks to ensure the quality of students' intern experiences through purposeful employer engagement. Today, the organization pays close attention to each internship employer's motivation for participating in the program, emphasizing the importance of having partners who are invested not only in pipeline development for their industry but also in youth development. As explained by the organization's founder and leader Tony Monfiletto, "initially we talked about this as pipeline work, and then we found employers that were transactional. It was not good for us or kids or them. It made them short-tempered and evaluative, not developmental. We've shifted. This aligns with the mission of our organization, which is healthier communities. The real reason employers do this is because they know we need more young people to have work skills in order for the whole community to progress."

School and work integration is also key to X3's success. Over time, FFE and LSN schools have found ways to integrate work-based learning into school, often through project design that integrates work-based skills. And, schools integrate themselves into work, often attending students' internship demonstrations both as a show of support and also to discover ways that they might integrate that learning into the classroom.

leaders train and develop employer mentors, take time to understand who youth are and where they come from, partner with schools and families to support learner progress, and proactively foster inclusion.

Institutions of postsecondary education, which may include community colleges, colleges, universities, or registered apprenticeships, play key roles in universal pathways. Contrary to the narrative of "college or career," pathway systems presume that all learners will need some form of postsecondary education specific to their chosen pathway. This design feature is also, in some cases, counter to the inferred narrative of "college and career," which can imply that all learners should attain a four-year degree. Apart from being far from reality, this narrative does a disservice to learners by ignoring or devaluing the career pathways that require advanced education in a different form, like a two-year degree or an apprenticeship. In contrast, pathways systems engage a variety of

postsecondary partners to advance equity and promote learner development by offering the specific experiences that learners will need based on their chosen pathway. This requires postsecondary institutions — as it requires K-12 schools and employers — to be part of a statewide, coordinated effort to facilitate pathways.

Postsecondary pathways are defined by clear articulations of learning and credit sequences that span high school through employment. Postsecondary institutions partner with high schools to allow learners to earn college credit through dual enrollment, early college, or other credit transfer agreements. They may also partner with school districts and community organizations that support college awareness, readiness, and access for all learners, especially those who are underrepresented in postsecondary education. Postsecondary institutions offer courses of study that align with the qualification frameworks for statewide pathways, whether those be the requirements

Innovation Spotlight: Youth Apprenticeships

CareerWise is a national leader in youth apprenticeships. With sites in **Colorado**, **New York City**, Elkhart County, Indiana, and Washington DC, the CareerWise model provides opportunities for youth to engage in a blend of high-school classroom and work-based learning while developing skills and credentials that prepare them for work in a number of high-demand, high-opportunity fields. CareerWise challenges the mental model of apprenticeships as singular pathways into a trade. "For students, youth apprenticeship is an options multiplier. Apprenticeship can be a powerful enhancement to their education or a fast-track to a professional career, or both." CareerWise also emphasizes the integration of high school, postsecondary, and work-based learning, debunking the "college or career' mental model in which career development is an alternative to higher education. "Apprenticeship is not a diversion from higher education — it's a rigorous education option that combines theoretical learning with practical learning that focuses on career and education objectives."

CareerWise works closely with business partners across multiple industries to design and deliver this modern youth apprenticeship model. The organization is clear that employer and industry engagement is not philanthropic, but rather strategic. Specifically, CareerWise and employer partners alike describe industry engagement as an opportunity to increase productivity and build a better prepared, more equitable workforce pipeline.

CareerWise offers youth apprenticeships in education, hospitality, information technology, advanced manufacturing, business operations, financial services, and healthcare.
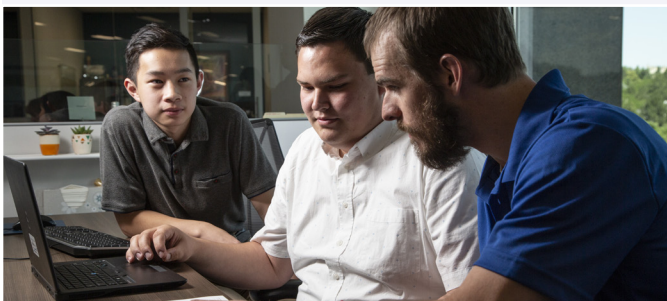
for aspiring business leaders, journalists, or welders. They work to ensure that all incoming learners can earn credit for prior learning, with parity for dual credit, advanced placement, and work-based learning; provide support to minimize or eliminate penalties for developmental and remedial education; and articulate transfer agreements with other schools and institutions to enable learner mobility.

Finally, pathway systems integrate community-based organizations (CBO) that help learners advance by providing critical wraparound support, enrichment, and recognized learning opportunities. CBOs include an array of learning spaces that support and develop young people: afterschool programs, sports teams, mentoring organizations, arts organizations, pre-apprenticeships, and others. While the learning that happens in these spaces is rarely considered or "counted" within traditional education systems, it can play a profound role in supporting positive youth development and shaping occupational identity development. In many contexts, CBOs can also mitigate and reduce youth barriers to success by providing wraparound support services, including mentorship, tutoring, family support, and social-emotional development. Whereas K-12, postsecondary, and employer support typically ends when a learner completes a program, CBO supports are well-positioned to follow a learner as they navigate and transition between programs and institutions. In this way, they enable access, opportunity, and mobility. Finally, CBOs can facilitate learning that is recognized along a learner's pathway. Examples of these kinds of learning include pre-apprenticeship programs that partner with schools and local industry or unions' community-based projects to integrate work and academic learning and allow learners to earn credit, or community-based internships that meet career exploration or pathway advancement requirements.

EQUITABLE

Universal pathways are equitable. Enabling equity means ensuring equally high outcomes for all learners and removing any predictability of success or failure associated with race or class, thereby interrupting historical inequities, creating inclusive communities, and cultivating each learner's unique talents and interests.[23] It also means valuing and cultivating the cultural wealth of the communities where learners reside.

Equitable systems recognize that proactive and differentiated actions are needed to disrupt and redesign the historical inequities that are built into our schools and

systems. This has many implications in universal pathways, including but not limited to ensuring equitable access to pathways, ensuring equitable educational outcomes, and eliminating under or overrepresentation in postsecondary education and career pathways. Factors influencing access can include pathway program availability, pathway program location, school choice systems, and transportation.[24] Factors influencing educational outcomes are closely related to school and program quality, educator skill and ability, and school funding; proponents of equity in pathways must be deeply invested in the work of school improvement and in policies that ensure equitable access to high-quality resources. Finally, factors influencing representation across pathways can include exposure, mentorship, and coaching.

In addition to focusing on equitable outcomes, equitable systems are equally concerned with the development of asset-based approaches that build on and contribute to the health and well-being of learners, their families, and their communities. These approaches recognize that social and economic mobility may be deeply personal but are also sociological, and therefore deeply embedded in the context of community. *Community cultural wealth*[25] is an expression that refers to forms of cultural capital that empower young people to navigate their educational experiences successfully. Community cultural wealth is asset-based, acknowledging the strengths that exist within communities; while recognizing and combating the systemic ways in which poor communities and communities of color have been denied economic and social capital, it still values and builds on community assets. Pathway systems cultivate and tap into community cultural wealth, which includes: aspirational capital (the ability to maintain hope in the face of barriers), linguistic

capital (communication skills, including multilingualism), familial capital (the ability to utilize extended family and community connections), social capital (the network of individuals that help learners access and navigate opportunities), navigational capital (the ability to navigate complex institutions), and resistance capital (the ability to resist generational oppression). Cultivating and tapping into community cultural wealth means forming partnerships with community leaders and institutions that help learners dream, navigate systems, and resist racial oppression. It means forming deep relationships with families. It means enacting policies that invest in community development.

Just as it is important to cultivate community wealth, it is also important to cultivate learners' social capital within and beyond their family and community networks. Social capital is the ability to access and mobilize a range of human relationships to further a learner's potential and help them achieve their goals, even as those goals shift over time.[26] Through an equity lens, cultivating social capital is essential; young people growing up in higher-income families have many more social connections to positions of power, which afford them greater access to exposure and opportunity. For example, young people in the top economic quintiles count double the number of non-family members in their network as those in lower quintiles, and count double the number of CEOs, politicians, and professors in their networks. Recognizing that relationship gaps are equity gaps, opportunity ecosystems intentionally cultivate young people's social capital, both by honoring and engaging their families and community, and by increasing their access to adults across school, work, and community environments.

Learning and Development
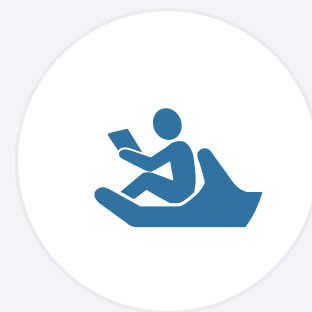
Under the Learner Promise, universal pathway systems depart from the established norms of traditional schooling: its emphasis on required curriculum units and course sequences as defined through general education, its primary or exclusive recognition of learning that happens in schools, and its reliance on standardized systems of assessment to recognize learning and determine learner advancement. In contrast, universal pathway systems focus on the development of critical competencies that support learners' personal, professional, and academic development. They recognize and support learning when and where it happens using balanced systems of assessment to evaluate and reward deep learning. They prioritize cultural competency and align teaching with the learning sciences.

COMPETENCY DEVELOPMENT

Traditionally, education systems prioritize the acquisition of content knowledge organized within separate and siloed disciplines. In contrast, universal pathways focus on developing critical competencies that integrate the development of academic, professional, and personal knowledge and skills.

In competency-based education, "learning outcomes emphasize competencies that include application and creation of knowledge, along with the development of important skills and dispositions," and "competencies include explicit, measurable, transferable learning objectives that empower learners."[27] Broadly, this means that definitions of learner success, from graduation profiles to course objectives, emphasize critical knowledge, skills,

and dispositions that are developed through higher-order learning and demonstrated in practice. These knowledge, skills, and dispositions are transparent: learners know what competencies they need to develop, how they need to demonstrate them, and how they can apply them to the next phase of their learning and work.

Competency-based systems develop the wide array of personal and professional skills that enable people to be successful in learning and in work over the course of the "sixty-year curriculum." These include the personal success skills that are required to navigate lifelong learning and work (also called 21st-century, non-cognitive, or social-emotional skills). While personal success skills models vary, they are generally thought to include skills like communication, collaboration, agency and self-direction,

problem-solving, and social awareness. Jobs that require such skills are growing at a rate that is two and a half times faster than those that do not, and will make up two-thirds of all jobs by 2030.[28] Pathways also seek to develop the professional skills that are specific to individual career pathways, including tacit knowledge and tricks of the trade,[29] which have been traditionally deprioritized (and even stigmatized) in traditional schooling. K-12, postsecondary school, employers, and community partners participating in pathways attend to the development of technical skills, as recognized by industry credentials and other certifications, and also to the habits of thinking, working, and learning that will transfer across the multiple professional and learning contexts that a person will traverse in the course of their life. Through work, school, and community-based learning, pathway systems seek to ensure that all learners develop a base of essential personal skills and a specific set of professional skills that are required in the pathway of their choosing.

ANYWHERE ANYTIME LEARNING

Universal pathways challenge traditional education's assumption that in order to count, learning has to happen in school. In contrast, pathways recognize learning that happens in schools, workplaces, and communities. They also recognize learning no matter when it happens: learning that happens in or outside the bounds of the school day and learning that happens outside of the standard progression of age-based grade sequencing.

Anywhere, anytime learning "refers to the belief that legitimate (i.e., "credit-bearing") and effective learning can and should occur at any time and in any place. Extended learning opportunities are those that require that educators, families, and learners will seek learning opportunities beyond the schoolhouse walls. These can include enrollment in postsecondary classes and programs, online opportunities, real-world experiences such as internships, and/or areas of study defined and pursued by learners."[30] This belief is, in many ways, countercultural in traditional education because it challenges the mindset and belief that learning is what happens in school. In contrast, anywhere anytime learning emphasizes a learner's demonstration of learning, not the number of hours they spend in a classroom. It is an approach to education that focuses on ensuring learners are able to understand and engage with complex knowledge and skills through application in meaningful contexts, and that they are able to show evidence of their learning to support their continued growth, development, and advancement

Innovation Spotlight: Youth Apprenticeships

Founded in 2011, **MHA Labs** is the manifestation of a grassroots youth power movement to unlock the skill-building potential of every home, classroom, afterschool program, and work-based learning experience. The MHA Labs' community includes thousands of practitioners who use positive youth development practices to build 21st-century skills success and self-agency. MHA Labs supports its community by rapidly translating 21st-century skills research into easy-to-use frameworks, tools, assessments, and trainings all FREE on mhalabs.org.

To create a foundation for innovation, MHA Labs worked with over 125 researchers, practitioners, parents and youth to reach consensus on a core set of easy-to-understand 21st-century skills organized into domains called MHA Building Blocks. The 6 Building Blocks are Personal Mindset, Planning For Success, Social Awareness, Verbal Communication, Collaboration and Problem Solving. Each building block contains skill objectives that can be embedded into any youth development experience from ages 6 to 26 years. MHA Labs used this foundational research to further isolate an Hirability Skill Set targeted at summer jobs, internships, and entry-level employment by administering and analyzing more than 12,000 employer performance reviews conducted over seven years.

A framework is only as good as its implementation, so MHA Labs provides an easy to follow design method called REFRAME: Reveal Targeted Skills, Establish Evidence, Focus on Activity Design, Reinforce Expectations, Assess Using Feedback, Magnify Recognition, and Explore Meaning Making. REFRAME integrates top performance management techniques with social-emotional learning strategies to create empowering developmental experiences. These practices can be used by teachers, instructors, employers, and even parents to power up youth.
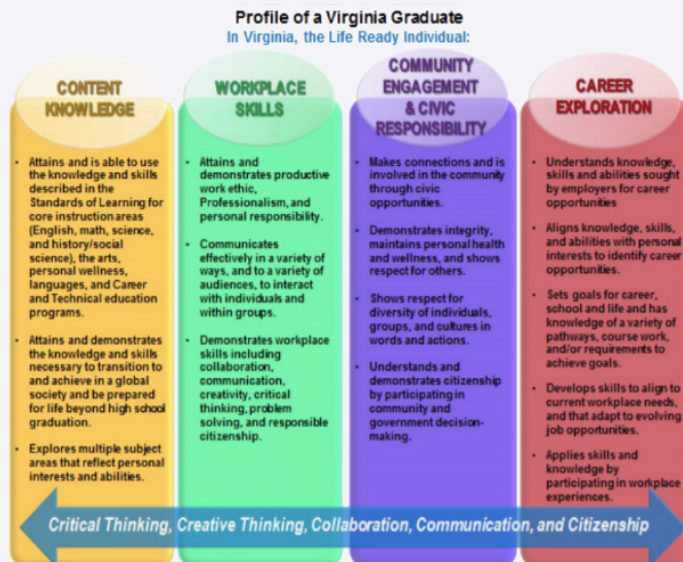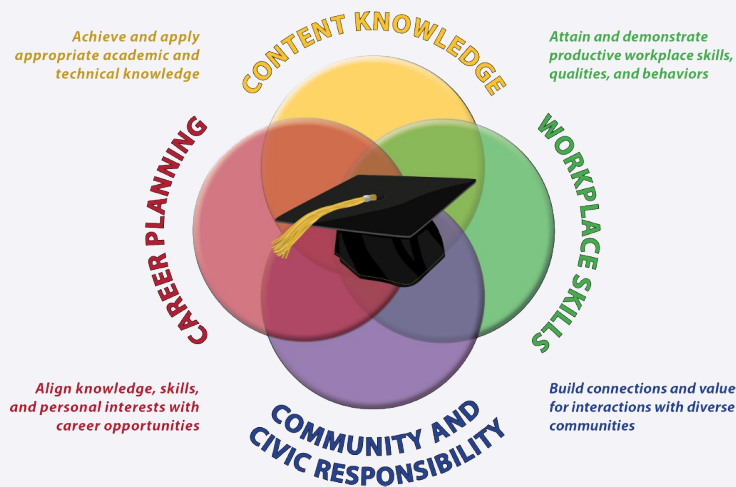
Innovation Spotlight: State Graduate Profile

Virginia is taking a comprehensive and coherent statewide approach to redefining success more broadly. The **Profile of a Virginia Graduate** establishes a new set of expectations – known as the 5Cs: critical thinking, creative thinking, communication, collaboration, and citizenship skills – and aligns knowledge, skills, and personal interests with career opportunities. In 2016, HB 895 required the state to create the Profile of a Virginia Graduate. Effective for the class of 2022, the bill requires each graduate to complete an Advanced Placement, Honors or International Baccalaureate course, or industry certification. In 2017, the Virginia State Board of Education approved revised Standards of Accreditation that updated graduation requirements for the Class of 2022. These regulations (8VAC20-131- 51) go beyond the requirements of HB 895 and require all graduates to "acquire and demonstrate foundational skills in critical thinking, creative thinking, collaboration, communication, and citizenship in accordance with the Profile of a Virginia Graduate."

To support local districts and regions with developing and implementing programming that supports all students in meeting the new academic, personal, and professional requirements of the Profile of a Virginia Graduate, the Virginia Department of Education (VDOE) partnered with Advanced Learning Partnerships, the Virginia School Consortium for Learning, and Commonwealth Learning Partnerships to provide professional development and implementation support. Called the Virginia Is for Learners Innovation Network, this partnership creates a statewide initiative for building educator capacity for innovation, aligned with the new vision of success.

Profile of a Virginia Graduate

In Virginia, the Life Ready Individual Will During His or Her K-12 Experience:

Achieve and apply appropriate academic and technical knowledge

Attain and demonstrate productive workplace skills, qualities, and behaviors

Align knowledge, skills, and personal interests with career opportunities

Build connections and value for interactions with diverse communities

CONTENT KNOWLEDGE

WORKPLACE SKILLS

CAREER PLANNING

COMMUNITY AND CIVIC RESPONSIBILITY

Profile of a Virginia Graduate
In Virginia, the Life Ready Individual:

CONTENT KNOWLEDGE	WORKPLACE SKILLS	COMMUNITY ENGAGEMENT & CIVIC RESPONSIBILITY	CAREER EXPLORATION
• Attains and is able to use the knowledge and skills described in the Standards of Learning for core instruction areas (English, math, science, and history/social science), the arts, personal wellness, languages, and Career and Technical education programs.	• Attains and demonstrates productive work ethic, Professionalism, and personal responsibility.	• Makes connections and is involved in the community through civic opportunities.	• Understands knowledge, skills and abilities sought by employers for career opportunities.
• Attains and demonstrates the knowledge and skills necessary to transition to and achieve in a global society and be prepared for life beyond high school graduation.	• Communicates effectively in a variety of ways, and to a variety of audiences, to interact with individuals and within groups.	• Demonstrates integrity, maintains personal health and wellness, and shows respect for others.	• Aligns knowledge, skills, and abilities with personal interests to identify career opportunities.
• Explores multiple subject areas that reflect personal interests and abilities.	• Demonstrates workplace skills including collaboration, communication, creativity, critical thinking, problem solving, and responsible citizenship.	• Shows respect for diversity of individuals, groups, and cultures in words and actions.	• Sets goals for career, school and life and has knowledge of a variety of pathways, course work, and/or requirements to achieve goals.
		• Understands and demonstrates citizenship by participating in community and government decision-making.	• Develops skills to align to current workplace needs, and that adapt to evolving job opportunities.
			• Applies skills and knowledge by participating in workplace experiences.

Critical Thinking, Creative Thinking, Collaboration, Communication, and Citizenship

toward academic attainment and workforce readiness.[31] In pathway systems, learners are supported and empowered to experience deeper learning across all contexts where learning occurs: middle and high schools, community colleges, and four-year universities, workplaces, and community organizations.

Anywhere, anytime learning could look like a high schooler getting credit for an online course that they chose to take on their own time. It could also look like a learner getting credit for a math project that they demonstrate at their architecture internship rather than at school. It could look like an adult learner who took time off from school getting credit for past school- and work-based learning, as demonstrated through competency assessments. Whatever the case, the point is clear: learning happens everywhere, and it happens outside of the boundaries of time. When learners can earn credit for learning no matter when and where it happens, they can traverse pathways that cross multiple learning environments and that transcend their age or grade level. As explored further on, anywhere anytime learning needs to be supported by strong infrastructure: common or universal qualification and competency frameworks that make learning requirements clear to all parties, not just teachers; common, valid, and reliable competency-based assessments that can be recognized across all education providers, including schools, colleges, and employers; and technology platforms that enable virtual and accessible learning and "hold" valid evidence of learning to be shared with multiple stakeholders.

INTEGRATED PROGRAMS OF STUDY

In the traditional system, K-12 expectations may or may not translate to readiness for postsecondary study, and postsecondary study may or may not recognize K-12 learning. Pathways to four-year colleges and pathways to the workforce are often similarly disconnected. In contrast, universal pathways articulate integrated programs of study that span K-12, postsecondary, workforce, and community institutions of learning. These programs of study share a common commitment and adherence to strong, evidence-based, and responsive pedagogy. No matter where learning happens, learners experience it as relevant, engaging, rigorous, and responsive.

Integrated programs of study are called "integrated" because they define the K-12, postsecondary, workforce, and community-connected learning experiences that learners engage as they develop and demonstrate competencies on a pathway of their choosing. These may exist at many scales: within high schools or school networks, across districts, across regions, or across states. Programs are not prescriptive — they do not remove learner agency or dictate a learner's experience — but they are aligned and coordinated. Integrated programs of study help a learner see how their high school experience will feed their postsecondary education, how their internship will ensure credit for high school graduation that is also recognized by the community college they plan to attend, or how their pre-apprenticeship will allow them access to the postsecondary and work-based credentials they need to become a licensed apprentice in the trade of their choice. Within the context of the learner promise, integrated programs certify to a learner that their work today will support their progress tomorrow and ease the transition between spaces and institutions of learning. Integrated programs of study also weave together learning experiences that happen in school, workplaces, and community, allowing and encouraging learners to earn credit for learning where it happens and applying that credit to their advancement.

Integrated programs of study are characterized by a commitment to good learning and teaching. Pedagogical principles transcend the different spaces and institutions that learners traverse to support learning wherever it happens. There exists a plurality of beliefs and models about what constitutes good teaching and, to some degree, this plurality is healthy — even necessary. When we step into schools in different communities, or when we follow a learner from a classroom to an internship to an afterschool program, we should expect to see learning that is happening in different ways and that is responsive to the environment, the task, the learner's learning needs, or the cultural context. And yet underneath this plurality lies a common set of evidence-based principles for effective learning and teaching.

Innovation Spotlight: Integrated High School Programs of Study

Big Picture Learning supports a growing national and international network of schools and initiatives seeking to reimagine learning and education systems. BPL emphasizes relationships through advisory and mentorships, learner agency through learning that is relevant to personal interests and situated learning in the real world beyond the classroom and school walls. Big Picture Learning articulates this vision for secondary education through Ten Distinguishers, which describe design features that advance the vision of universal pathways through integrated programs of study. These include, but are not limited to: advisory structure, learning through interests and internships, authentic assessment, and postsecondary planning.

Big Picture Learning aims to ensure that all learners can engage in a robust program of study that connects high school with the world of work. In their own words, "real-world learning is best accomplished in the real world. Big Picture learners intern — often twice a week for an entire school day — with experts in their field of interest, completing authentic projects and gaining experience and exposure to how their interests intersect with the real world." Supported by a strong advisory structure, authentic and performance-based assessment, and postsecondary planning, Big Picture Learning enables, supports, and recognizes the learning that students do in workplaces; facilitates connections between learning that happens in schools and in places of work; and supports learners to develop personalized postsecondary pathways that integrate academic and career readiness.

Harbor Freight Fellows, an initiative of Big Picture Learning, is a program that provides place-based apprenticing opportunities for youth who have a passion for trades. Building on Big Picture Learning's vision, the program embeds principles of deeper learning and engagement to go beyond work-based learning. Specifically, the Harbor Freight Fellows model focuses on connecting an individual learner within a community of professional practice by integrating three aspects of situated learning: learner interest, which drives engagement and motivation; practice

of meaningful work that allows the learner to join in and absorb the culture of the profession; and relationships and networks that provide mentoring, sharing of tacit knowledge, and connections to further learning and work. As expressed by Elliot Washor, cofounder of Big Picture Learning and founder and director of Harbor Freight Fellows, "it is not just about content, it is about relationships. We figured out a long time ago that 'who' is as important as 'what.'" Recently, Big Picture Learning has launched another apprenticing program modeled after Harbor Freight Fellows called Project Insight. This new initiative aims to create pathways into fields related to eye health, vision care, and working with visually impaired populations.

Innovation Spotlight: Integrated District Programs of Study

The **Linked Learning Alliance** serves as the hub for a coalition of educators, employers, and community partners dedicated to helping every young person determine their own future through a proven, systemic approach to education called Linked Learning.

Linked Learning integrates rigorous academics with real-world learning and strong support services to prepare students for success in college, career, and civic life. In a multi-year, independent evaluation of systemic implementation of Linked Learning in nine participating districts, Linked Learning was shown to improve student outcomes and increase equity: students accumulated more credits, completed more college preparatory coursework, were more likely to graduate high school, and reported increased college and career readiness skills than peers in traditional high school programs. The results were particularly pronounced for students who started high school behind academically.

The Linked Learning Alliance partners with K-12 school districts to ensure that they provide equitable access to high-quality, district-wide pathways and programs of study. Through years of doing this work with districts across the state and nation, the organization has been able to identify and elevate findings about the conditions and systems that are essential for equity. They find that "school districts and networks can take action to ensure access and equity within pathway programs. This begins with ensuring that all learners can access schools with pathway options of their choosing; awareness and recruitment efforts, school choice systems, and transportation are critical to ensuring equitable access. Ensuring equity also requires close attention to mitigating over- and under-representation within any career pathway. Research shows that without direct and strategic action, young people are likely to self-select a career pathway option that aligns with their race and gender expectations. To mitigate these patterns of inequity, school and district leaders can take action to increase career awareness, support occupational identity exploration and development, and increase representation across pathways."

To continue building the field of college- and career-ready education, the Alliance drives high-quality Linked Learning practice and builds public commitment and political will for high-quality college and career preparation. The Alliance manages Linked Learning Certification, a custom framework for integrated college and career pathways that sets the standard for quality, builds capacity, and supports continuous improvement. The Alliance also convenes key stakeholders and supports research and learning to advance college and career readiness for all youth.

Strong Pedagogy

Strong and responsive pedagogy shares the following characteristics.

1

Research-Based

Teachers use evidence-based strategies and engage pedagogy that is informed by learning sciences. Learning sciences emphasize learner engagement, involve cognition and emotion, and build on prior context and knowledge.

2

Learner-Centered

Learners develop and demonstrate the agency to direct the course of their learning. There is recognition that different learners will need different learning resources, modalities, and support at different times.

3

Responsive

Learning experiences and environments embrace young people's culture, race, gender, and identity as assets, meet learners where they are, and provide opportunities for all learners to engage in learning that is relevant.

4

Project-Based

Learners engage with content and skills in applied and meaningful real-world contexts in order to increase engagement, integrate learning across disciplines, and promote higher-order learning like application and creation.

Strong and responsive pedagogy shares the following characteristics. Good pedagogy is research-based: teachers use evidence-based strategies and engage pedagogy that is informed by learning sciences.[32] Learning sciences emphasize broad ideas like the importance of learner engagement; the idea that learning involves cognition and emotion, making emotional wellness essential for learning; the idea that all learning builds on prior context and knowledge; and the idea that intrinsic motivation leads to better learning than extrinsic motivation.[33] Good pedagogy is learner-centered: learners develop and demonstrate the agency to direct the course of their learning. While there is little research to suggest that learners have fixed "learning styles," there is recognition that different learners will need different learning resources, modalities, and support at different times depending on who they are, the task at hand, and the context.[34] Good pedagogy is personalized to support learners' diverse needs and strengths. Good pedagogy is culturally relevant and responsive; learning experiences and environments embrace young people's culture, race, gender, and identity as assets, meet learners where they are, and provide opportunities for all learners

to engage in learning that is relevant. Cultural relevance entails removing bias from the teacher-learner relationship; engaging with relevant and representative learning material; building on the cultural, historical, and linguistic wealth of different learner communities; and working to ensure representation in the teaching force such that all learners have the opportunity to engage with educators, mentors, and other supportive adults who share their identity. And, good pedagogy is project-based: learners engage with content and skills in applied and meaningful real-world contexts in order to increase engagement, integrate learning across disciplines, and promote higher-order learning like application and creation.

CURRICULUM AND ASSESSMENT

Most traditional schools define common or core curriculum as following a clear, time-bound path that is graded using narrow tests and assessments. By contrast, pathway systems are modular and interoperable; curriculum units are built around competencies and can be grouped or sequenced in different ways for different learners at different times. Pathway systems also

emphasize balanced systems of assessment that require active, performance-based modes of demonstration.

Traditional curriculum is defined through scope and sequence: a bound set of learning objectives that must be met within a fixed period of time through a common and linear progression of content and assessment. Modular curriculum is different in select but important ways. Like traditional approaches, modular curricula are designed to develop a certain number of learning objectives that can be assessed and certified. However, modular curricula function more like building blocks than pre-assembled packages; they tend to be smaller in scope than traditional courses, and not necessarily bound within a set or linear order. Their smaller grain size and nonlinearity allow for more flexibility, which is helpful and necessary when structuring learner pathways that can happen anywhere, anytime and that are personal rather than general. Making the shift to modularity can raise concerns; people understandably question whether modularity ignores the important ways in which new learning builds on prior, or worry that modularity will create logistical and operational challenges for schools. To assuage these concerns, educators can think about modules as being relatively autonomous, not entirely autonomous. They are not bound by sequence or time, but they are also not independent of developmental progressions that engage in building content and skills at increasing levels of complexity. Designing curricula in a modular fashion does not remove all structure or order, but simply allows the flexibility necessary for learners to advance through anywhere anytime pathways.

In traditional systems, learning is evaluated through end-of-course and standardized assessments that are used to calculate GPAs. These, in turn, are represented in transcripts that determine whether or not learners are eligible to graduate. Learners can advance with "D" or "C" letter grades, which say little except that a learner did not learn all that was taught and is likely to struggle as they advance due to this lack of foundation. Traditional grading and ranking systems reinforce equity gaps by preferencing

certain types of knowledge and ways of learning and by emphasizing attainment over development. They do little to support the learning process, verify or validate what was actually learned, or ensure that learners master what they need to advance in their learning.

In contrast, competency systems run on evidence and build trust — trust between all stakeholders that a learner has demonstrated competencies and is ready to advance. Competency systems use balanced systems of assessment to validate that learners have mastered the required competencies. Balanced systems use different kinds of formative and summative assessments, emphasizing high-quality performance assessments, depth of knowledge rather than memorization of content, opportunities for feedback and revision, and multiple opportunities to reach proficiency. "In addition to verifying what learners know, assessment becomes part of the learning process, with low-stakes opportunities to practice and self-assess throughout the learning cycle. The result is that learners see assessment as meaningful to their learning."[35] Performance assessments evaluate deeper learning within competencies and require application within a meaningful context or problem. They ask a learner to engage in higher orders of thinking and learning: to show what they know, to apply and translate content and skills, and, often, to create something new. In pathway systems, performance assessments may be validated both by a teacher and a work-based mentor to certify that the learner demonstrates key academic and professional competencies alike.

Balanced systems of assessment are vital because they support deeper learning and focus on mastery, and because they validate student learning in a way that can be trusted by multiple stakeholders. Unlike high-stake, one-shot approaches to assessment, balanced systems decouple assessments from time, allow multiple opportunities for demonstration, and do not hold learners back for failure to pass the first, second, or even third time they attempt a demonstration.

Innovation Spotlight: Assessment for Learning

The **Assessment for Learning Project** (ALP) has worked since 2016 to increase the number of educators, schools, and school systems that use assessment to deepen learning. By making grants and engaging in field-building activities, ALP works to advance three principles of assessment:

1. Assessment should deepen learning and support students' development of knowledge and skills

2. Assessment should increase learner ownership and agency

3. Assessment should help make school, classrooms, and education systems equitable

ALP supports and enables numerous projects across the country with assessment innovation. Below are examples of projects supported through the coordinated national effort.

The Hawai'i Department of Education is advancing a framework for culturally responsive assessment rooted in the HĀ outcomes: "a Department-wide framework to develop the skills, behaviors, and dispositions that are reminiscent of Hawai'i's unique context, and to honor the qualities and values of the indigenous language and culture of Hawai'i."[36] The project creates opportunities not only for assessment of individual learner demonstration of HĀ outcomes but also of learning environments; this model reflects the belief that culturally responsive assessment is about individuals and community.

The Colorado Education Initiative is creating competency-based pathways to graduation in response to new performance-based graduation requirements. The organization's work strives to help districts and schools use authentic assessments like performance-based assessments and portfolios to meet graduation requirements. In Colorado, this work is being led by cohorts of high school learning laboratories that are doing the work to design competencies, course progressions, curricular units, and assessments.

Del Lago Academy is launching CompetencyX, a partnership between Escondido Union High School District, San Diego Miramar College, and Biocom Institute. It is an assessment approach for workforce performance tasks that allow high school students to earn badges that are college- and industry-validated. The platform articulates pathways, which are flexible, and customizable maps of badges that learners can earn to gain access to different careers. Learners input evidence into a digital portfolio and are assigned badges when that evidence is validated by industry and college professionals. Learners can also co-create badges with workforce mentors during internships and work-based learning. The platform is sponsored in part by a grant from the Assessment for Learning project.

Systems and Structures

Under the Learner Promise, universal pathway systems articulate multiple career paths from K12 through postsecondary education, career, and continuing education. In the traditional system, learners complete a set of requirements in order to graduate high school, at which point they may or may not have a realistic choice between a number of postsecondary options, which themselves may or may not result in degrees or credentials. If and when learners do earn credentials, they are responsible for "selling" them in the marketplace of employers or institutes of advanced education which, again, may or may not see them as valid, relevant, or responsive to the real demands of work and learning. In contrast, universal pathways are transparent and recognized by schools and employers across the state. Each pathway is defined by a progression of qualifying milestones and recognized credentials. Qualifying milestones evaluate a learner's ability to demonstrate a set of universally acknowledged competencies which are recognized across contexts and institutions on the basis of universally accepted performance assessments. This degree of coordination across K12, postsecondary education, industry, and community is enabled by a strong system of shared governance and dynamic, transparent data systems. Ultimately, pathway systems communicate this to learners: we certify that if you demonstrate these competencies along a progression of milestones, you will have access to continuing education and a career in our state.

Universal pathways create qualifications frameworks that define success at multiple stages of a learner's development and advancement, including K-12, postsecondary, workforce, and beyond.

Qualification frameworks can be thought of as the backbone of universal pathways systems. They define, for each and every career path, what it means to be ready to advance to subsequent stages of learning and work all the way up to and beyond entering the profession. This concept is not novel — apprenticeships define the progressive knowledge and skills that individuals must demonstrate to advance into and through the trade. The medical field defines a series of board exams that aspiring doctors must pass to practice and advance in the field; and public school teachers must pass certification exams before entering the profession, with the option of earning additional licenses or becoming board certified as they advance through the profession. Qualification frameworks are not new; they simply have not been applied universally to all career pathways nor mapped backward into K-12 and postsecondary education.

What is different and novel about a system of universal qualification frameworks? First, the articulation of qualification milestones does not begin at advanced levels of study — it "backs up" into K-12 education, whether in high school or earlier, to define pathways that begin far earlier and therefore influence what and how learners learn from adolescence onward. Second, they align K-12, postsecondary, work, and advanced levels of study into a single and transparent continuum of learning. In the traditional system, requirements for learning and recognition of learning — whether diplomas or certificates or degrees — may or may not lead to subsequent learning or work. The onus is on learners to align their experiences across levels of study in pursuit of a personal or professional aspiration. In pathways systems, universal qualification frameworks that are certified by the state take that burden off the learner by articulating transparent and progressive levels of study that cross K-12, postsecondary, work, and advanced study. Third, universal qualification frameworks are wider and farther reaching than the traditional system; rather than being a patchwork of requirements determined by independent professional boards or labor unions that learners themselves must decipher and navigate, they are a coordinated system of requirements articulated across a plurality of professions.

Innovation Spotlight: Certified Qualification Frameworks

The New Zealand Qualifications Framework (NZQF) is aligned across primary and secondary education, higher education, and workforce certifications and credentials.

According to the New Zealand Qualifications Authority, this "is the heart of New Zealand's education system. All qualifications...come with an assurance of quality that is recognized and trusted worldwide. This allows [students] to benchmark [their] level of skill and knowledge on the NZQF and makes it easier for countries and regions to compare qualifications. For employers, it makes explicit what graduates can 'do, be and know' on completion of the qualification. And for all parties, it lays out pathways to further education, employment and/or a contribution to their community."

LEVEL	QUALIFICATION TYPES
10	**Doctoral Degree**
9	**Master's Degree**
8	**Postgraduate Diplomas and Certificates, Bachelor Honours Degree**
7	**Bachelor's Degree, Graduate Diplomas and Certificates**
6	
5	**Diplomas**
4	
3	
2	**Certificates**
1	

New Zealand Qualifications: 10 Levels for a Lifetime of Continuous Learning

New Zealand has constructed a system in which the secondary school certificates build into and align with the adult or tertiary system. The National Certificate of Educational Achievement has been constructed to align and intersect with higher education and career technical education as well as workforce pathways and industry certificates.

Innovation Spotlight: European Union Universal Pathways

The **Erasmus Programme** (European Region Action Scheme for the Mobility of University Students) is a project of the European Higher Education Area across the European Union. The project aims to achieve the following common priorities:

Reducing unemployment, especially among young people

Promoting adult learning, especially for new skills and skills required by the labor market

Encouraging young people to take part in European democracy

Supporting innovation, cooperation, and reform

Reducing early school leaving

Promoting cooperation and mobility with the EU's partner countries

The Erasmus+ Programme offers university students the opportunity to study or complete an internship in another European country for two to 12 months. The program guarantees all learners the full recognition of courses, internships, and other forms of study across all participating universities and countries, and allows learners to apply those recognitions of learning to certifications and credentials that are recognized across the European Union. This universal recognition is legally recognized: before leaving the home university, the participating student signs the Learning Agreement describing their intended program of study, and at the end of the stay abroad, the host university prepares a Transcript of Records confirming the completed studies' program and the results. These documents are legally binding for all parties involved.

What is notable about this program is that it represents a transnational partnership to recognize and validate a common set of learning experiences, certifications, and credentials so that learners can navigate pathways not only between institutions but also between nations. The partnership brings together government, industry, and higher education leaders from multiple countries to create a modular program for education, workforce training, and development toward meaningful credentials recognized across countries.

Ultimately, universal qualifications frameworks and certifications amount to a shared agreement: a statement of trust between schools, employers, communities, and learners that there is real, transferable, and marketable value to demonstrating learning and earning credentials along any one of many certified paths.

UNIVERSAL COMPETENCIES AND RECOGNITION OF LEARNING

Universal pathways are built on competency-based infrastructure: a universal set of credentials and competencies that are recognized across K-12, postsecondary, workforce, and community settings in alignment with qualification frameworks.

If qualification frameworks are the backbone of pathway systems, then credentials are the vertebrae: the universal recognitions of learning that students earn at specific qualifying milestones. In the New Zealand example, these are certificates, diplomas, and advanced degrees that are aligned with levels of study for lifetime learning. This system of recognizing learning is starkly different than traditional approaches.

In traditional U.S.-based education systems, passing courses allows a learner to earn a high school or college diploma, or perhaps a certificate. Their accomplishments are conveyed in a transcript that shows little more than their course list and grade point average. In most cases, a learner's transcript and credentials convey and confer little information about their specific interests, accomplishments, or demonstrated competencies. For this reason, most credentials have inconsistent "buying power" in the market; they may or may not help a student get into a college, get into a program, or get a job. The inconsistent value of a diploma or degree hurts students by offering them an unreliable set of options in exchange for the time and energy they have invested in their own learning and development.

Whereas a high school diploma may or may not "mean" anything consistent to colleges, universities, or employers, universal pathway systems articulate credentials that have specific meaning to all stakeholders. A credential might certify that a learner has completed a pre-apprenticeship and is ready for an apprenticeship. A college degree might show that a learner is ready for advanced teaching studies. A credential might show that a learner is ready to transfer from a two-year to a four-year college to complete the next levels of study on the path to becoming a registered nurse. A micro-credential or badge might show that a learner has a specific skill that is viable and marketable in the workplace within their chosen career.

Credentials align to specific milestones along a qualification framework and reflect a learner's progress and advancement between K-12, postsecondary, and workforce. As learners earn recognized credentials, they apply them to subsequent steps along their path, be it in school or a place of work. This is referred to as offering "stackable, portable, and recognized" credentials, with the key point being that learners are not left with "dead" credits or credentials that they cannot use to advance their learning or career.

Credentialing systems are powerful because they allow learners to earn credits across a variety of contexts and environments, including work, and because they are recognized and certified by multiple stakeholders. In reality, getting to this level of coordination requires a significant level of interoperability between K-12, postsecondary, and workforce agencies. This usually requires K-12 systems to revise their high school graduation requirements and diplomas and to rethink traditional transcripts. This also requires colleges and universities to define new credentials and degrees that are more tightly mapped not only to postsecondary courses of study but also to K-12 and work-based learning. Postsecondary institutions may be asked to "eliminate silos between credit and noncredit programs and encourage the adoption of learner-friendly policies, like offering credit for prior learning."[37] This level of alignment requires collaboration and coordination across K-12, postsecondary, and workforce.

Underneath this architecture of universal credentials aligned to qualifying frameworks is a system of competencies: the specific knowledge and skills that

Innovation Spotlight: Mastery Transcripts

Mastery Transcript Consortium (MTC) is a growing network of schools that are introducing a digital high school transcript — the Mastery Transcript™ — that creates opportunity for each and every student, assisting with their pursuit of opening up multiple pathways to and beyond graduation. The Mastery Transcript authentically and holistically captures student learning, progress, and interests. MTC works with a network of public and private schools to design and implement the Mastery Transcript and facilitate the transition to mastery learning. MTC also works with higher education partners "to support sustainable change in higher education admissions. We offer colleges an alternative to the traditional transcript: one that offers more nuance and depth than grades and GPAs, while still providing consistency and validity for admission purposes."

The mastery transcript differs from traditional transcripts in numerous ways.

> Instead of grades and GPAs, the Mastery Transcript is organized around foundational and advanced mastery credits, which provide more detail and transparency about a student's demonstrated learning compared to a single grade or averaged number.

> Instead of offering one snapshot of a student's course completions and grades, the Mastery Transcript is multi-layered. Learners, teachers, colleges, employers, and other stakeholders can look at a top layer "snapshot" and dig more deeply into different areas of a student's interests, experience, and demonstrated competencies.

> The Mastery Transcript is learner-centric, allowing learners to choose which projects, achievements, and experiences to feature. This promotes student ownership and self-direction.

Through the use of mastery credits and emphasis on student ownership and self-direction, the Mastery Transcript offers a more valid, reliable, and personalized approach to credentialing as compared to traditional high school transcripts.

Innovation Spotlight: Digital Badges for Workforce Readiness

Career and Technical Education Consortium of States Workplace Readiness Skills Assessment and Digital Badge

The Career and Technical Education Consortium of States (CTES) is a consortium of member states that provides "industry-based resources and services for the improvement of career technical education and workforce development instruction, assessment, certification, and delivery." Member states include California, Kentucky, Idaho, Virginia, Oregon, Nevada, Maine, and South Carolina, as well as Brevard Public Schools in Florida and the Florida Automobile Dealers Association.

As part of its services, CTES offers training in 22 workplace readiness modules, including but not limited to creativity and innovation, integrity, conflict resolution, big picture thinking, information security, career and life management, and continuous learning and adaptability. CTES also offers the CTES Workplace Readiness Skills Assessment (WRS), which evaluates competency in these workplace skills, allowing learners in member states to demonstrate readiness for college and career.

In at least one member state, Virginia, learners who complete the WRS and pass with a score of 75 percent or higher can request the Workplace Readiness Skills Digital Badge. This badge, offered in partnership with Credly, is a "credible, portable, personalized online credential" that verifies workplace readiness for qualifying Virginia students. Because learners "own" the badge once it is earned, they can use it to advance on any postsecondary path of their choosing.

learners must engage and demonstrate in order to advance along their path. As previously described, competencies are rigorous and common expectations for learning that ground and orient all other elements of a competency system. In pathway systems, competency frameworks include and integrate the diverse academic, professional, and personal knowledge, skills, and dispositions that support learner success. Some competencies are universal and represent knowledge, skills, and dispositions that are essential for all learners. Others may be specific to particular pathways. Regardless, when a learner looks at the progressive qualification framework they will pursue along their chosen pathway — the series of milestones they must demonstrate and pass to advance, they will see specific competency requirements, options for demonstration, and the learning experiences available to them to engage with and demonstrate those competencies. Competencies are the common language of a pathways system.

For the credits and competencies to be widely accepted and transferable across K-12, postsecondary, and workforce institutions, these systems of assessments must be commonly recognized as valid, reliable, and rigorous. In part, this is a matter of consistency and reliability;[38] For the credits and competencies all parties must be certain that assessments of learning as well as credit and credential attainment are meaningful. Within schools or places of work, this means ensuring that all teachers and employer

mentors have trust and confidence in the assessments and assessment practices being used by other teachers and mentors. Across diverse pathway systems, this means ensuring that K-12, postsecondary, and workforce leaders have trust and confidence that the credits/credentials and crediting/credentialing processes being used in other sectors. This typically relies on cooperative design practices and strong systems for norming and calibrating. In many parts of the country, this will require a significant departure from the status quo; in particular, a significant departure for K-12 and postsecondary institutions that remain largely reliant on systems of standardized assessments and local determinations such as letter grades. These assessments and measures of learning are insufficient in pathway systems: they do not recognize or value work-based or prior learning; they offer only limited evaluation of contextualized knowledge or transferable skills, and are inherently biased.

Universal pathway systems can be powerful engines of opportunity because they allow learners to earn universally recognized and validated credentials that translate to further learning or work.

SHARED CROSS-SECTOR GOVERNANCE

Universal pathway systems are coordinated through shared, cross-sector, and representative governance. Traditionally, K-12, postsecondary education, professional boards, and community organizations operate in silos:

they have different systems of governance, different budgets and funding streams, different outcomes, and different incentives. Learners bear the responsibility for navigating these divided systems; when they struggle to navigate effectively, they take remedial courses, pay for credits they cannot use, or drop out of school and work entirely. Pathways systems depart from this status quo by aligning K-12, postsecondary, workforce, and community institutions. They are guided by aligned incentives, integrated standards, common accountability measures, systems for communication and collaboration, and streamlined funding. Without these conditions, effective and sustained collaboration is rarely possible.

State leaders and policymakers enable shared governance for universal pathways by directing the establishment of a cross-sector statewide governing body. State governing bodies must be inclusive of K-12, postsecondary, community, and multiple professional boards, industries, and unions. They must also

> " Universal pathway systems can be powerful engines of opportunity because they allow learners to earn universally recognized and validated credentials that translate to further learning or work.

be representative of communities across the state, both geographically and demographically. State leaders and policymakers also direct and support the establishment (or expansion) of regional governing bodies, which, like their statewide counterpart, are cross-sector and representative of their regions. These regional bodies serve two essential functions: overseeing the design and operation of regional pathway systems and informing statewide planning and operation to ensure they reflect regional priorities.

State governance sets statewide vision,[39] helping to define and enact common purpose, outcomes, and goals. More than just a set of words, common-defining vision typically relies on deep work to shift incentive systems. For example, it may rely on broadening K-12 schools' sense of responsibility for academic preparation to include

workforce readiness or broadening employers' desire for prepared workers to include investing in positive youth development. State governance articulates the policy priorities that are necessary for state-level systems change; significant policy change is usually required to shift away from a time-based system, expand work-based learning and pathway programs, support and enable high school and postsecondary program redesign, and shift curriculum and assessment practices across the state. Policy change is also important for allocating resources and managing funding streams. Often, K-12, postsecondary, workforce, and community organizations receive revenue through siloed federal, state, local, and philanthropic funding streams. Working toward collective impact requires a highly technical facility with these funding mechanisms, and streamlining and braiding funding for maximum impact and efficiency.

One of the most important roles that state and regional governing bodies share is identifying and developing the statewide universal pathways themselves. They articulate which pathways will exist, create qualification frameworks, develop competency systems, create systems for validating learning, and develop processes for certified, universal credentialing. These are shared roles between state and regional governance to ensure that statewide pathways are representative of regional educational, economic, and social contexts. For this same reason, it is imperative that workforce and professional association leaders co-create pathways with K-12, postsecondary, and community leaders. Cooperative design processes ensure that learning experiences are designed with the end in mind, and that learners who are successful in pathway programs will be able to apply that success to future academic and workforce advancement. They ensure that pathways are responsive to economic demand and the future of work. And, they ensure that competency systems balance academic and technical skill development to ensure equity for all learners and communities. This is particularly important given the history of vocational education in the United States; often, vocational pathways are designed to be less rigorous

than academic pathways and to separate along paths toward very different social and economic outcomes. Leveraging pathways as strategies for increased equity and economic mobility requires direct creative participation from workforce leaders and careful assurance that all learners have the opportunity to develop critical academic knowledge and skill. It is important to note that while governing bodies may direct all of these essential areas of work, it will usually take dedicated teams of staff across multiple sectors to execute the design and buildout of these new systems, with substantial input from teachers, learners, employers, and communities.

At the regional and local levels, governance is often facilitated through an intermediary regional support organization that plays a critical role in coordinating partners and stakeholders on the ground. Regional governing bodies and support organizations play the essential, hands-on roles of convening, supporting, and guiding partners in their work. Intermediaries cultivate relationships.[40] Pathways rely on the development of trust and partnership between individuals and institutions. Intermediaries are positioned to do the deep work of cultivating and sustaining relationships, convening stakeholders to engage in the ongoing work of designing, implementing, and overseeing pathways. To ensure that pathways serve learners and meet institutional needs, it is essential that all stakeholders — including learners and families — participate in cooperative design. Relatedly, regional intermediaries broker and coordinate resources. Intermediaries may also play the role of connecting supply with demand, as it often takes a neutral party with a global view of regional players to connect the dots. This might mean connecting apprenticeship programs with community organizations that can provide supportive services, connecting postsecondary institutions with high schools looking to facilitate dual enrollment, or connecting employers with training programs that have capacity to meet their needs. Finally, regional intermediaries can help to manage data and evaluation, using common measures and indicators to track progress toward goals. Intermediaries aggregate, analyze, monitor, and share key data that lend themselves not only to impact evaluation, but also to continuous improvement and learning. When these data and insights are shared within and across regions in the state, they contribute to a state-wide learning and improvement network that helps ensure pathway systems remain responsive and agile.

State and regional governance also play the important role of ensuring there are onramps from pathways into careers, that education and employment opportunities are available to learners who complete pathway programs, and that learners have sufficient and continuous support as they transition between stages of their education and employment. This work begins with coherent articulation and pathway certification: states and regions cooperate to continually assess and assure that pathways are "aligned from high school to/through postsecondary programs of study, with embedded opportunities to earn stackable, portable, industry-recognized credentials throughout the pathway, culminating in postsecondary credentials with value in the local labor market." Creating onramps also means supporting transitions through high-touch, personalized, and continuous systems of support that help young people navigate pathways. Often coordinated regionally, these supports involve school-based systems of advisement for learners and alumni, including postsecondary systems of advisement, and/or community-based organizations that provide critical wraparound support and advisement over the course of a learner's pathway.

SHARED AND TRANSPARENT DATA SYSTEMS

Integrated data systems enable transparency, responsiveness, and learner agency. Designed as learning ecosystems, pathways are diverse and distributed systems that encompass formal and informal learning institutions. As they grow, they include increasing numbers of leaders, practitioners, and learners making daily decisions about implementation: leaders decide how to design programs and allocate funding, practitioners determine how to support student learning, and learners choose pathways and learning options. Managing this complexity to achieve coherence and common outcomes requires that all of these actors have access to common data, including but not limited to workforce and industry data, academic achievement data, and individual learner data. It is critically important that this transparency be matched with sufficient privacy to ensure that data — especially learner data — is not jeopardized.

Pathways are responsive to changes in their environments. The ability to be dynamic and flexible is a key part of how they sustain themselves over time. Responsiveness is enabled by integrated data systems: schools are able to advise learners about pathway selection based on workforce trends or adjust programs of study

Innovation Spotlight: Comprehensive Learner Record

IMS Global Learning Consortium (IMS Global) is a nonprofit organization advancing "edtech interoperability, innovation, and learning impact." As part of this effort, IMS Global has developed the Comprehensive Learner Record (CLR): a secure, verifiable, and learner-centric learning record that stores and supports a learner's achievement,

including courses, competencies, and skills "in a digital format. A 2020 report from the American Association of Collegiate Registrars and Admissions Officers (AACRAO), a CLR sponsor, describes CLRs in the following way: "CLRs represent a much wider picture of student learning and recognize that learning occurs in a variety of settings. Such learning may come from academic courses, competency-based instruction, or from co-curricular or experiential learning that is supervised by the college or university (examples include research projects, internships, global education, leadership in clubs or organizations, service learning, etc.)."[41]

COMPREHENSIVE LEARNER RECORD

The IMS Global CLR leverages the Open Badges 2.0 Standard, which is a universally recognized standard method for articulating information about a learner's achievements or accomplishments, embedding that information into a portable image file, and validating and verifying it virtually. The CLR is also compatible with Credential Engine, a platform and "transparent credential marketplace" that registers credentials from diplomas to badges to apprenticeships and beyond, and allows a learner to research that credential's earning, career pathways, and more.

The CLR is a key enabler of pathways in learning ecosystems, because they allow learners to demonstrate learning where it happens. The CLR also empowers learners by allowing them to earn universally recognized credentials which are portable: they follow a learner as they advance along their path, and can be recognized by colleges, employers, and other stakeholders. Finally, the CLR is powerful because it supports and enables learner agency, authorizing learners to own the evidence of their accomplishments and choose how they apply those accomplishments as they advance along their path.

Innovation Spotlight: Integrated Data Systems

The **Trusted Learner Network** (TLN), a project of Arizona State University (ASU) and Salesforce, is an innovative project and effort to create a scalable, reliable, and learner-centered approach to managing learner data over the course of their lives. The TLN was designed in response to a number of challenges and opportunities: giving learners agency to "own" the records of their achievements over the course of their lives; managing the increasing diversity of credentials that learners can earn, including traditional diplomas, certificates, badges, micro-credentials, and others; and engendering trust between the various institutions, agencies, and stakeholders that need help verifying the value of learners' achievements. The TLN "describes a new, secure, and decentralized approach to recording, curating, and sharing learner data on abilities and skills across the learner's lifespan."[42]

The TLN uses blockchain technology to create a trusted and secure network. Blockchains enable peer to peer, public networks that allow individuals to directly transfer information and other assets without an intermediary. For TLN, blockchain technology enables individual learners, institutions, organizations, agencies, and other stakeholders to share information in near real-time. In the context of learner pathways, this is significant because it enables learners to share information about their learning experiences and accomplishments, whether earned in school, online, or at work, with the various stakeholders they may engage along their path. Even more, learners truly own this data because it is not proprietary to any one institution. In this way, TLN empowers and enables learners along pathways of their choosing.

to reflect developments in the future of work; community organizations are able to adjust programs and supports to reflect changes in social and economic conditions; and/or employers are able to adjust work-based learning curriculum based on changes in the global economy. Data systems can help individual stakeholders access the data they need to adapt to changing contexts, and can help intermediaries guide cooperative regional responses.

Finally, integrated data systems enable learner agency. Traditionally, records of learning are held within institutions: high schools, colleges, universities, or industry associations hold records of learners' credits and credentials, often communicated in transcripts or degrees. Apart from a resume or a Linkedin profile, there is no single place where a learner can curate the record and evidence of their learning not only from formal institutions, but also from informal learning, community leadership roles, and personal experiences. Looking to the future, it is becoming increasingly important that learners be able to

own the records of their learning and determine when and how to share these with different audiences in a neutrally-administered "marketplace" of educators, employers, and other stakeholders.

The learner promise is a commitment to young people, their families, and their communities that a public education will facilitate access to a purposeful life and meaningful, chosen, upwardly mobile career. While the language of universal pathways is the language of "all," this commitment must also be a commitment to equity: to ensuring that Black, Latinx, Indigenous, and other learners of color will experience and benefit from structural equity through systems designed for access, relationships, support, continuity, and attainment. Creating these systems at scale requires integrated and collaborative efforts to disrupt historical inequities, reshape institutions, and affect change within the culture of American public education.

SYSTEMS CHANGE: CONDITIONS FOR SCALE

Universal pathways represent significant structural and cultural shifts from traditional education systems. The good news is this: across the country, communities are showing that these shifts are possible. They are redesigning high schools and partnering with employers to provide learners with rich learning experiences that engage them in and prepare them for the world of work. They are looking to the workforce to understand the future of work, to youth development experts to understand occupational identity, and to social scientists to understand the power of relational networks. They are developing performance assessments and reimagining credits to redefine what it means to graduate high school. And, they are enacting policies to expand work-based learning and competency-based systems.

The primary challenge we face today is not a lack of vision or an absence of proof points. It is one of scale. In the United States today, there are 4.6 million opportunity youth: young people between the ages of 16 and 24 who are not in school and are not employed. One in nine people in this age group in our nation today fits the description of an opportunity youth,[43] and COVID-19 is likely to increase these numbers. Rising to meet the scope of need will demand more than singular innovators or scattered proof points. It will demand seismic shifts in local communities and at a national scale: an expanded collective conception of the purpose of and outcomes of public education; individuals and institutions that are able to offer new types of learning experiences; a rearrangement and realignment of K-12, postsecondary, workforce, and community; and proactive public policies that create conditions for mobility and enable innovations in learning.

This work envisions pathway systems at scale: a network of states that have created integrated, sustainable, and equitable learning ecosystems in which all learners, including Black, Latinx, Indigenous, and low-income young people, are able to access and advance along multiple certified pathways to upward mobility and economic opportunity. Moving toward this vision requires grappling with the question: what are the state-level systems changes necessary to ensure that all young people — not just a few — can explore interests, discover purpose, and develop the knowledge and skills they need to actualize that purpose in the future society and workplace? How might we shift systems and get to scale?

Defining Scale

To date, most educational research that focuses on scale has tended to define it in unidimensional ways, involving solely or predominantly the expansion of numbers of schools reached by a given reform effort. But taking an external reform initiative to scale is a complex endeavor. It not only involves spreading reform to multiple teachers, schools, and districts as highlighted by conventional definitions, it also involves all the challenges of implementing reform documented by decades of implementation research and of sustaining change in a multilevel system characterized by multiple and shifting priorities. It is the simultaneity of these challenges, in all their complexity, that makes the problem of scale fundamentally multidimensional.[44]

—*Rethinking Scale: Moving Beyond Numbers to Deep and Lasting Change*

In education, scale has typically been defined as the ability to reach a large number of people. However, this one-dimensional understanding of scale has limitations: it is

not sufficiently responsive or flexible to accommodate variations in local contexts or respond to changes over time; it does not take into account the human dynamics of shifting mental models, which integrates new ways of working and of shifting or abandoning established habits; and it ignores the fundamental importance of relationships in facilitating and sustaining change.[45] And, it cannot accommodate innovations like universal pathways, which operate much more like learning ecosystems than linear, siloed, or hierarchical systems. As ecosystems, pathways are multidimensional, cross-sector, and dynamic, enabling learners to interact across many learning experiences and environments that change over time. The dynamism of pathways requires a more robust and nuanced conceptualization of scale, one that goes beyond reach to encompass complex growth, change, and innovation.

Systems thinking helps us see scale not as a condition of size, but as a condition of thriving: achieving widespread adoption, developing the capability of all actors and stakeholders, adapting to varying conditions and the change that comes with time, achieving impact at the scale of need, and becoming part of mainstream society and policy.

When we see scale as a condition of thriving, we begin to understand the process of getting to scale less as one of linear growth or replication, and more as one of creating the conditions in which thriving is possible. Getting to scale means creating the conditions in which a new educational system can thrive.

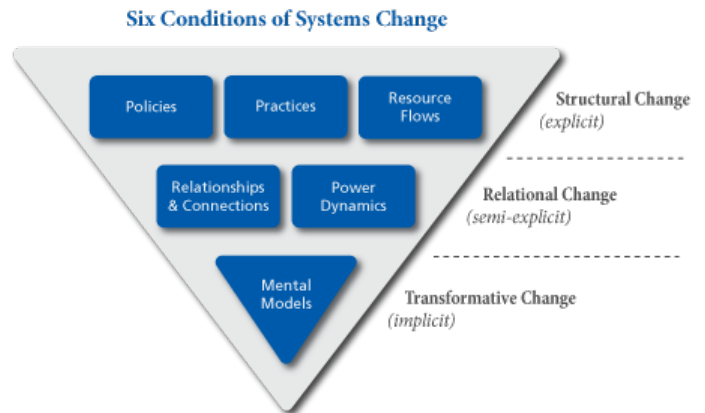|	
Adoption	Pathway systems are at scale when there is uptake and integration of core practices within and across multiple levels of a system, from individual classrooms to entire regions and states.
Capability	Pathway systems are at scale when individual actors — learners, educators, families, and employers — have the knowledge and skill they need to work in new ways, and can maintain the quality of their relationships.
Adaptation	Pathway systems are at scale when they balance fidelity to core practices with flexibility necessary for regional variation and new innovation.
Impact	Pathway systems are at scale when they achieve desired outcomes — educational and economic mobility and equity — at the scale of social need.
Mainstreaming	Pathway systems are at scale when they integrate into commonly accepted beliefs and mental models; are supported by social, economic, and political norms; and are sustained by mainstream policy, resources, and practices.

Defining Systems Change

"In a world of polarized interests and accelerating disparities, the challenges of achieving equitable progress at scale against complex social and environmental problems have become all the more daunting. For some, the response has been to accelerate efforts to change explicitly visible conditions, and to do so quickly. But we argue that now is the time to focus even more on the implicit or less publicly acknowledged key systems change conditions to truly increase the lasting impact of your efforts." - *The Water of Systems Change*

Source: *The Water of Systems Change*, FSG

Systems change can be defined as advancing equity by shifting the conditions that are holding a problem in place.[46] Building on this definition, we can come to understand systems change as the process of diagnosing and then shifting the conditions that are holding a problem in place, dismantling inequitable systems, and also actively creating the systems which will enable the more equitable future we want to see.

Research on systems change defines three types of change, from those we can see — policy, in written rules, regulations, and actions — to those that are harder to see — relational networks, systems of power, beliefs, mindsets, and values. The report "The Water of Systems Change" identifies six dimensions of systems change.

The first three conditions of systems change are easy to see. We can read policies that are on record, observe how institutions operate and what practices are condoned or required, and look at resources like budgets or human capital systems to understand how resources are distributed. The second three are harder to observe, at least objectively. Understanding the relational networks and power dynamics that hold a problem in place requires us to step outside our own perspectives, to observe systems of privilege that are often hidden and may, at times, be advantageous to us without our full knowledge or intent. Likewise, understanding the mental models that reinforce the status quo requires looking beyond values and beliefs espoused in narrative and rhetoric, which often veil individuals' or institutions' lived values. It requires a deep understanding of historical bias and oppression, and how they still operate today. Changing these systems requires vision, policy acumen, and coalition-building.

It is unarguably necessary to achieve structural change that lends itself to systems change; we cannot and will not create equitable and universal pathway systems at scale without changing many of the policies governing public education, without changing the current design and operating practices of K-12 and postsecondary schools, or without distributing funding more equitably and allocating funds to support the expansion of pathway programs. At the same time, we must recognize these as necessary but insufficient conditions for real systems change, and therefore for scale. If we do not change the allocation of decision-making power to include individuals and communities that have long been on the sidelines of educational design and leadership, we may design new systems that are equally deaf to their needs and aspirations. If we do not root out the racism and bias that live within each of us, we will enact policies and build new institutions that are equally racist and biased.

There is no singular order of operations for systems change — shifts must be made at all levels, often at the same time. Changes in policy might compel behaviors which, over time, shift mindsets. Those new mindsets may be reinforced when power systems shift and new voices have opportunities to shape public discourse. As mindsets continue to shift, they may compel new practices and further shift institutions, bringing people into new relational networks.

As this hypothetical path of systems change illustrates, systems change is nonlinear. And, while change takes clear strategy and planning, it is also an inherently organic and emergent process. Leaders and communities must constantly observe the change happening around them and engage in action that responds to those dynamic processes. At the core of leading systems change is, then, the ability to see the conditions of change: as they are and as they might be.

Structural Change	■ Changes to policies that establish rules, regulations, and laws for communities and institutions ■ Changes to practices that define how institutions, communities, and coalitions operate ■ Changes to resource flows that determine how people, knowledge, information, and money are allocated
Relational Change	■ Changes to relationships and connections within networks, and to how people in communities and systems relate ■ Changes to systems of power that dictate who has the formal and informal authority to make decisions
Transformative Change	■ Changes to mental models — beliefs, values, and mindsets — that influence how individuals, institutions, and communities behave

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The Six Shifts Needed to Achieve the Learner Promise: Universal Pathways at Scale

Enacting systems change begins with seeing the conditions that are holding the status quo in place and imagining the conditions that would enable the future we want to see. Specifically, this means understanding the conditions that maintain the current state: a siloed and inequitable educational system that remains anchored in the model of general education leading to a college degree but only guarantees this pathway for one in five learners who sets out on it. It also means understanding the conditions that would enable the learner promise: a future reality in which states ensure that every learner will have access and support to pursue a certified pathway toward a meaningful, chosen career that will build social and economic capital over the course of their lives.

Current State

Learner Promise

POLICY

Current State	Learner Promise
K-12 education policy reinforces a system that is time-based, age-based, linear, and measured by standardized academic assessments.	K-12 education policy supports a system that is competency-based, aligned to flexible universal pathways, and that is measured using balanced systems of assessments with evidence of mastery.
States acknowledge and recognize learning that happens in formal institutions of learning.	States acknowledge and recognize anywhere anytime learning.
States, districts, and postsecondary institutions award credentials that are based on completion of academic requirements and/or seat time. These credentials may or may not translate to future learning or work.	States, districts, and postsecondary institutions certify universally recognized credentials that are based on demonstration of competency aligned to universal pathway qualification frameworks, which certify eligibility for future learning and work.
State policy reinforces human capital systems that are siloed between K-12, postsecondary, employer, and community sectors; that are not representative of demographic diversity; and that lack essential competency to support learners' academic, personal, and professional development.	State policy supports human capital systems that create coherence between K-12, postsecondary, employer, and community; that diversify workforces in all three sectors; and that utilize competency-based approaches to continuously develop educators with the capacity to support learners' academic, personal, and professional development.

Current State

PRACTICE

K-12 schools offer a general education that focuses on mastery of a broad set of academic standards, evaluated mostly through standardized assessments.

———————

Select career pathways exist under the heading of career and technical training. These may or may not be available to all learners. Learners who are college-bound are unlikely to enroll in career or technical coursework.

———————

Postsecondary colleges and universities offer a variety of majors culminating in an array of degrees, which may or may not have value in the employment market. Remedial coursework does not count toward a learner's course of study.

———————

Employers may or may not take part in training their future workforce by offering internships or apprenticeships. This happens in a select number of career fields.

———————

Community-based education providers are primarily relegated to the roles of after school and summer education. Families with more social capital are more likely to access these opportunities and use them to help their learners advance.

———————

Teacher preparation and credentialing is siloed between K-12 and postsecondary. Training may or may not develop teachers to support college and career readiness.

———————

Only 1 percent of teacher preparation programs include assessment literacy in the United States.

Learner Promise

K-12 schools offer a plurality of pathways, built on foundational knowledge, skills, and experiences that are focused on competency development and evaluated through balanced systems of assessments.

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Credentialing through competency attainment is meaningful (such that remedial coursework in the future is unnecessary).

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All learners access universal pathways, which are part of an integrated education system that sees academic, personal, and professional development as core to the purpose of an education.

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Postsecondary colleges and universities offer pathway programs that are coherent with K-12 and workforce, and that align to the qualifications and certifications articulated within universal pathways. Though admission to a postsecondary institution signifies that no remedial work is needed, comprehensive supports are still provided.

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Employers assume shared responsibility for educating the future workforce. This is true across all career fields.

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All educators must build assessment literacy and recognition of learning with high reliability on professional judgements (as students show what they know).

———————

K-12 and postsecondary share common approaches and frameworks for teacher preparation and credentialing, aligned to college and career readiness and youth development, and emphasizing the skills needed for culturally competent teaching. Human capital systems are competency-based.

	Current State	**Learner Promise**
RESOURCES	K-12, postsecondary, employer, and community sectors operate with separate funding streams and narrow quality and/or accountability measures.	K-12, postsecondary, employer, and community operate with coordinated and aligned funding streams and related accountability measures.
	Schools and programs are funded at vastly different levels, often based on the wealth of the community in which they are located.	Schools and programs are funded equitably in order to disrupt and reverse inequities related to race, class, and other present and historical inequalities.
	K-12, postsecondary, employer, and community sectors have few or no systems for effective communication or data sharing. Data is proprietary, and sectors focus on different outputs and outcomes.	K-12, postsecondary, employer, and community utilize shared and transparent data systems to support learner development and advancement, work toward shared goals, and engage in continuous improvement.
	Human capital systems do not distribute educators equitably to all schools and communities. The teacher workforce is disproportionately white.	Human capital systems do distribute educators to mitigate historical inequities in schools and communities. The teacher workforce is representative of racial diversity.
RELATIONSHIPS	K-12, postsecondary, employer, and community sectors are siloed, with independent or competing priorities.	K-12, postsecondary, employer, and community sectors operate cooperatively, working toward shared vision and goals.
	Few learners have robust or continuous networks of relational support.	All learners take part in deep and continuous networks of relational support, including advisement and work-based mentorships, which see them through the many transitions of their pathways.
	Most of learners' educational experiences occur with little or no relationship to their communities.	Learners' experiences are closely related to their communities; learners engage with community partners, anchor and apply their learning to community issues, and have the opportunity to build the collective wealth and wellness of their communities.

POWER

Current State

Power is concentrated within hierarchical institutions that hold power over people.

Postsecondary admissions plays an outsized role in determining what K-12 schools prioritize and teach.

Learners have limited agency to make decisions about their own education.

Individuals and communities that have been historically oppressed have limited voice and decision-making authority.

Learner Promise

Power is shared and distributed.

K-12, postsecondary, employer, and community co-create educational opportunities and requirements from K-12 through employment.

Learners have the ability to direct the course of their learning along supported pathways of their choosing.

Learners own their own comprehensive learner records.

Governance structures engage traditionally marginalized voices in positions of leadership.

MENTAL MODELS

Current State

Most people believe that success in high school leads to a four-year degree, which guarantees a good job. Most people also believe that career pathways into trades are an alternative to college attendance, and are only for learners who can't or won't be successful in high school and college.

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Most people believe that young people should not decide on what career they want until they are in college, unless they choose to pursue a career and technical track.

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Most people believe that it is necessary and important to categorize young people by age, and to ensure that they progress grade level by grade level toward graduation. They hold a fixed idea of education as an age-based progression leading to the workforce.

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Most people hold personal biases based on race, gender, class, and other dimensions of identity. These biases, even when they are hidden or subconscious, inform their beliefs and behaviors, and harm young people.

Learner Promise

Most people believe that there are multiple pathways into careers that young people are passionate about, and that all of these pathways will include K-12, postsecondary, work-based, and community-based experience.

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Most people believe that career exploration can begin at a young age, and that pathways into careers can begin in adolescence so long as there is opportunity for young people to continue exploring and changing their goals.

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Most people believe that learning happens throughout our lives, and that learning does not need to be age-based. They are comfortable with the idea that different people's paths will take different courses depending on their goals, their experiences, and their context.

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Most people commit to work to identify and eliminate harmful biases. Doing this work is seen as part of what it means to be a citizen and a professional.

WHERE DO WE GO FROM HERE? STRATEGIES FOR ACTION

This work issues a call to action. Specifically, it is a call for a network of states to commit to the Learner Promise and assure that every learner will have access and support to pursue a certified pathway toward a meaningful, chosen career that will build social and economic capital over the course of their lives.

Getting there will mean mobilizing and supporting states to create the conditions necessary for systems change. Specifically, it will mean helping state leaders envision, compel, and coordinate the structural, relational, and transformative changes necessary to move away from a siloed and inequitable education system that predictably guarantees success through a four-year college pathway for one in five learners and to move toward one that coordinates K-12, postsecondary, employer, and community institutions to create a plurality of certified professional pathways for all learners.

There is no singular pathway for systems change. Systems change is highly strategic, but also emergent, non-linear, and responsive. We cannot offer a roadmap; however, we can build on decades of research to offer a theory of change.

The *Stanford Social Innovation Review* conducted widespread research on social change. Through this work, they identified three primary roles that actors can play in compelling and supporting systems change. They include: orchestrating change by convening networks and coalitions, innovating by creating new programs and systems, and agitating by calling attention to a problem and a solution. Often, singular actors wishing to take part in systems change play one role based on their personal, positional, or relational power.[47] Other times, institutions with significant personal, positional, and relational power catalyze and sustain systems change by taking action

in all three roles, and by creating points of access that mobilize diverse, often marginalized stakeholders to take action as well. Adapted from the initial research, the table below describes the roles of orchestrating, innovating, and advocating for systems change to scale universal pathways.

This section lays out priority actions that can compel state-level systems change within and across all three roles. Because state-level change is the focus of this change theory, many of the actions listed here entail change to state and local policy. First, policy is one of the most significant levers for change at the state level and can create the conditions — the systems, infrastructure, and incentives — necessary to compel and sustain change. Second, policy is both an early catalyst for innovation as well as a leverage point for scale; changing policy can simultaneously invite and encourage innovation in more places by making it easier to get started, and help mature innovations achieve greater stability through normative coherence within local, regional, and federal regulatory contexts. Finally, policy solutions play an essential role in advancing equity. Public policies have created and maintained our status quo: the very race and wealth inequalities that pathways seek to disrupt. Over centuries, an array of education, healthcare, environment, housing, transportation, and fiscal policies engineered social, economic, and political inequity. These policies contribute to the widening inequality we see today. This history, as well as the current reality of recession stemming from a global pandemic, means that achieving real equity demands the enactment of policies that create new pathways to opportunity, putting people and justice at the center.

At the same time, the actions laid out in this theory of change also represent and require operational, relational, and cultural work: building new materials and programs, developing new networks of leadership and governance,

Orchestrating	Organize and coordinate action across groups to implement and scale a solution.	Use the power of convening to: ■ Organize and mobilize stakeholders ■ Foster learning and sensemaking
Innovating	Develop or enable actionable solutions to a problem.	Use resources, including funding and technical support, to: ■ Create pathway programs ■ Redesign K-12 and postsecondary institutions ■ Build essential infrastructure ■ Develop robust systems of learner support
Advocating	Draw public attention to a problem and advocate for systemic solutions.	Use existing platforms and create new, inclusive platforms to: ■ Call attention to problems in the traditional system ■ Build knowledge about pathway programs ■ Advocate for equity

shifting power structures, and influencing beliefs. While policy is an essential lever for change, the actions that are prioritized for systems change also include deep and personal work at all levels, from state legislatures to local communities to individual classrooms.

Orchestrating

Systems change requires shifts in relational dynamics: how people connect and the power structures that inform their interactions. The shift to universal pathways entails immense change within the relational realm. First and foremost, it requires radical collaboration between sectors that are traditionally siloed, including K-12, postsecondary, workforce, and community. Pathways require not only that these sectors collaborate, but that they set and work toward shared goals, coordinate resources, and shift their internal institutional practices to align with a set of universal pathways. Beyond this, the shift to universal pathways entails significant change within power structures. It puts learners at the center of their education, empowering them to make decisions about their learning and "own" the recognitions of learning they receive along their pathway, and it empowers community constituencies to coordinate and implement pathways systems. It is possible to enact these shifts in relationships and power structures by creating new governance and coordinating structures, streamlining and aligning resources, creating

tools that enable learners and support cross-sector coordination, and facilitating open structures for shared learning and improvement.

RECOMMENDATION #1

Organize key actors for planning state and regional coordination of pathways

ESTABLISH STATEWIDE CROSS-SECTOR GOVERNANCE
Create a state governance committee or task force to set, maintain, and implement the statewide vision and plan for workforce development. Ensure sufficient representation from K-12, postsecondary, workforce, and community. Provide clear parameters for the committee or task force's role, responsibilities, and authorities. While regions should be largely responsible for coordinating and implementing pathway systems, state-level entities can make and maintain the statewide call for action; oversee the development of universal pathways and pathway qualification frameworks; design and build competency-based systems, including diplomas and integrated standards; develop state-level policies and allocate resources; develop statewide infrastructures; share statewide data for cooperative continuous improvement; convene regional leaders for statewide coordination; and

utilize feedback from regional partners to take actions that cultivate conditions for innovation and scale.

ESTABLISH STATE-LEVEL WORKFORCE GOALS WITH

In 2015, Colorado's Governor issued Executive Order B 2015-004, which instructed the Colorado Workforce Development Council to create the Business Experiential-Learning Commission composed of business, government and labor representatives. They were charged with developing and implementing a statewide Work Based Learning Continuum. In 2016, the state legislature passed HB 1289, providing school districts with $1,000 for each high school student who successfully earns an industry certificate, completes a qualified internship, or completes a pre-apprenticeship program.[48]

In 2016, Illinois passed the Postsecondary and Workforce Readiness (PWR) Act. PWR takes a student-centered approach to creating pathways, with the unifying goal that 60 percent of all adults will have earned quality postsecondary credentials by 2025. This is accomplished through four strategies. The state establishes frameworks to guide expectations for students between grades 8 and 12; creates college and career endorsements on high school diplomas; creates transitional math instruction to mitigate barriers to high school completion and avoid college remediation; and establishes a pilot program to advance competency-based learning.[49, 50]

EQUITY TARGETS

Leverage the power of state policy or executive order to establish clear, time-bound goals for education and labor market outcomes. Include specific targets for equity to create accountability for closing race, gender, socioeconomic, rural/urban, and other demographic outcome gaps. Communicate the collective social, economic, and democratic benefits of achieving equity in education and workforce outcomes. Ensure that support for institutions tasked with closing gaps is commensurate with new levels of expectation and accountability.

"Of the forty-three states with postsecondary attainment goals, thirty states have set goals to close racial equity gaps or improve outcomes for students of color, and twenty-nine states use data to illustrate the extent of racial gaps in college enrollment, persistence, completion, and/or attainment. Establishing racially-specific goals helps galvanize stakeholders to make specific changes to close these gaps. States like Texas have awarded grants to institutions serving Latinx and Black male students to directly impact their success in securing a certificate or degree. Minnesota also granted money to two- and four-year institutions that served historically underrepresented communities to provide services like paid internships and other services that promote long term academic success. By setting specific goals for students of color at the outset, states can explicitly focus strategies and resources on meeting those goals and closing equity gaps; without such goals, states might adopt policies that unintentionally perpetuate racial disparities."[51, 52]

ENABLE REGIONAL PLANNING EFFORTS

Leverage the power of the governor, legislature, and state agencies to coordinate resources and manage change at the regional level, and to create the regional infrastructure sustain collaboration and capacity-building across K-12, postsecondary, workforce, and community. Mobilize regional intermediaries to envision, coordinate, and lead change at the regional and local levels, ensuring that pathway systems are responsive to regional and cultural context. Emphasize equitable representation, with a focus on elevating and engaging voices that have historically been underrepresented in positions of leadership.

Pathways Wisconsin supports regions across the state to develop pathways aligned with regional workforce demand. Notably, the statewide effort emphasizes and supports cross-system collaboration as an essential condition for successful pathway development. Pathways Wisconsin funds regional collaboratives to work together to identify workforce priorities, convene cross-sector representatives, and design and implement pathways (College and Career Pathways). Additionally, regional collaboratives provide the means to ensure that all participating students can complete a pathway by "taking a sequence of aligned courses; earning an industry-recognized credential; enrolling in dual college credit classes; participating in career-based and work-based learning experiences; accessing related Career and Technical Education (CTE) student organizations."

FUND AND ASSIST REGIONAL INTERMEDIARY ORGANIZATIONS

Allocate funding to create and sustain regional intermediary organizations, which play the vital roles of convening, planning, and coordinating data and resources. Fund technical assistance for intermediaries to ensure quality operations and best practice.

RECOMMENDATION #2

Streamline and align planning, funding, and accountability to support cooperative action across sectors.

LEVERAGE PERKINS V TO ADVANCE PATHWAYS

The recently reauthorized Strengthening Career and Technical Education for the 21st Century Act (Perkins V) creates opportunities to align planning, funding, and accountability across K-12, postsecondary, and workforce. States can create and submit a combined state plan that integrates K-12 academic and career as well as workforce development plans (ESSA, CTE, and WIOA); align ESSA, CTE, and WIOA program metrics to support coordinated evaluation and improvement; align career pathways with available programs of study; leverage increased flexibility for allowable uses of funds to support state priorities; and invest in activities that enhance and grow pathways. Required uses of state funding now include CTE in nontraditional fields; programs for special populations; recruitment and preparation of CTE instructors; technical assistance; analysis and reporting on the effectiveness of the state leadership funds in achieving the state's strategic vision; and creating priorities and quality definitions that comply with law and emphasize quality and alignment. Additionally, states must spend 0.1 percent of their funding or $50,000 on recruiting of special populations to enroll in CTE programs.[53]

BLEND AND BRAID REVENUE STREAMS

Blending revenue refers to wrapping funds from two or more sources together. Braiding refers to coordinating those revenue streams toward the total cost of pathways. Blending and braiding revenue can be an effective and necessary strategy for states to promote pathways that cross K-12, postsecondary, and workforce, contributing to greater resource efficiencies and promoting collaboration. State legislatures and departments can also enact fiscal policies that make it easier for regions or municipalities to blend and braid revenue.

RECOMMENDATION #3

Develop integrated, transparent, and learner-centered data systems, including a universal learner record, to support cross-sector coordination and empower learner agency.

CREATE UNIVERSAL LEARNER RECORDS

Create transparent and accessible platforms on which learners have a unique, protected learner record and individualized learning plan. Such a platform can enable learners to map and direct their learning, and own the credits and credentials they accrue over time for the purpose of communicating to employers, admissions officers, and other stakeholders. Prioritize privacy while ensuring interoperability, so that learner records are not proprietary to any one place or institution.

BUILD INTEGRATED DATA SYSTEMS

Investe in statewide data systems that enable deep learning and learner advancement at multiple levels. Data system priorities include, but are not limited to: ensuring learners have secure digital identities and individualized learner records; creating infrastructure that allows regional leaders to share data between K-12, postsecondary, and workforce for the purposes of designing industry-informed pathways and tracking long term learner success outcomes; creating school or institution-level data systems that help teachers and learners make informed daily decisions about learner goals and learning, including early intervention for social, emotional, and academic needs; empowering learners to own and transport their data across contexts and time; and ensuring data privacy and security.

Build a knowledge-sharing ecosystem by facilitating structures for shared learning, improvement, and sensemaking.

FACILITATE STATEWIDE CONTINUOUS IMPROVEMENT

Learning and improvement require a balance between accountability and support to drive continuous improvement. States can create continuous improvement plans that help support learning and quality at all levels. Continuous improvement might begin with statewide quality frameworks for universal pathways, which can be used to set regional or local improvement goals that are studied, evaluated, and revised on a recurring basis. Ideally, continuous improvement entails learning across institutions and between regions in order to create mechanisms for lateral feedback and learning.

CREATE LEARNING FORUMS

Knowledge-sharing ecosystems comprise complex, evolving networks of organizations including think tanks, foundations, nonprofit, governmental, and global agencies as well as others who are consciously connecting to facilitate the sharing of new knowledge about education and learning, innovation, funding models, opportunities, and more. In addition to supporting learning and improvement, these ecosystems can support individuals and institutions through the sense-making process that comes with understanding, navigating, and managing change. States can provide funding and support for this diverse, cross-sector peer learning by engaging diverse constituents and providers and facilitating learning processes. Ideally, learning forums facilitate knowledge-sharing at many levels: between local and regional collaborators, regions and state-level actors, and states that are engaged in this work across the nation.

PROVIDE TECHNICAL SUPPORT

Systems change is complex work. States can support this work by engaging technical expertise and support from a variety of support providers. In addition to supporting and facilitating learning, as described above, technical support can enable learning and improvement for school districts, postsecondary institutions, employers, and more.

Innovating

Systems change requires substantial structural change within the realm of educational practice, and this, in turn, requires innovation. For this reason, a critical leverage point for systems change is enabling innovative approaches to organizational design, program delivery, and systems development. Often, innovators are individual or community actors who operate outside of existing norms — who have new perspectives, whose lived experience of a problem informs their solutions to that problem, or who have been systematically denied a seat at the table within existing systems of power and privilege. The process of enabling innovation also enables systems change at the relational level; it redistributes power by supporting and empowering new people and new ideas.

Stimulate innovation and create incentives that can help regions develop and oversee pathway systems.

AUTHORIZE INNOVATION ZONES

Authorize innovation zones or districts of innovation to catalyze pathway development, empower local leaders, and identify both enabling and limiting policies. States can set up innovation zones by passing enabling legislation and/or offering flexibility through waivers or exemptions from administrative regulations and statutory provisions.[54] Innovation zones can help states learn from early implementation and apply those learnings to support implementation at greater scale.

In 2012, Kentucky passed HB 37, which authorized the creation of Districts of Innovation. Districts of Innovation were provided flexibility from state administrative regulations and statutes. They also secured flexibility at the local level to help school leaders, teachers, and staff use more personalized and student-centered strategies. HB 37 allowed districts increased flexibility with their use of time and expanded learning spaces to integrate internships, community-based learning, and other forms of out of school learning into students' education.

FUND INNOVATION

ESSA provides states with opportunities to leverage federal funds to build capacity for competency-based learning, including opportunities to reserve funds for supporting transitions to personalized learning using Title I funding for direct learner services and support for attaining postsecondary credit. ESSA also provides access to grant funding for learner enrichment.[55]

CREATE ALIGNED ACCOUNTABILITY SYSTEMS

To enable innovation, realign state accountability systems with the desired goals and outcomes of a universal pathways system and build local and regional reciprocity. Create new metrics for school and district accountability by setting goals, allocating resources, and monitoring progress against key indicators. Balance accountability with support by creating learning and improvement networks within regions and across the state.

RECOMMENDATION #6

Build infrastructure that enables continuity of learning from K-12 through employment.

CREATE UNIVERSAL QUALIFICATION FRAMEWORKS

Engage experts and community representatives to develop universal qualification frameworks for all universal pathways. Qualification frameworks define success at each level of a pathway, including from K-12 through employment and beyond. They decouple and unpack standards and competencies, and recouple them as credentials that validate mastery of knowledge, skills, and competencies.

CREATE INTEGRATED COLLEGE AND CAREER COMPETENCY SYSTEMS

State policymakers and leaders can play a unique role in articulating and aligning academic and career and technical (CTE) standards, decoupling and recoupling these into integrated competencies. States should, at a minimum, ensure that both sets of competencies are rigorous, culturally competent, and developmentally appropriate. Alignment efforts can go further, creating competency

frameworks that are not only mutually supportive, but also empower learners to apply work-based learning to essential requirements for pathway qualifications, graduation, and postsecondary success.[56]

CREATE COMPETENCY-BASED GRADUATE PROFILES

Develop state graduation profiles that promote demonstration of mastery over seat time; integrate academic, career, and personal/professional competencies; recognize and reward work-based learning; and value multiple demonstrations of mastery, including performance assessments, work portfolios, and prior work. Provide technical support and guidance to districts to customize graduate profiles that meet state requirements and also align with local vision and priorities.

DEVELOP INTEGRATED PROGRAMS OF STUDY

Through state and regional coordinating bodies, work with workforce, K-12, postsecondary, and community leaders to define state and regional workforce priorities; articulate multiple pathways to employment in those sectors; and articulate stackable credentials to be earned along those pathways. Fund workforce, K-12, postsecondary, and community organizations to create quality pathway programs, including articulated partnerships to support learner transition or "onramps" between high school, college, and work. Invest dollars for community-based efforts to support learner progress and transitions, including but not limited to community-based organizations, recognizing the expertise that exists within local communities.

Alabama is developing a "continuous learning system" with competency-based pathways in K-12 education, career technical education, higher education, and the workforce. State leaders are developing in-demand career pathways that align workforce development programs around the attainment of valuable credentials, postsecondary graduation credit, and work-based learning experiences. The system will braid Alabama's federal education and workforce development funding streams to support in-demand career pathways and develop the Alabama Industry-Recognized and Registered Apprenticeship (AIRRAP) program.

Enable anywhere anytime learning.

ENABLE COMPETENCY-BASED CREDIT FLEXIBILITY

Create statewide allowances for learners to earn credit for learning where it happens, based on demonstration of mastery rather than seat time. Credit flexibility empowers learners to advance along their pathways and be recognized and rewarded for work-based learning, learning in community, dual and concurrent enrollment, and other experiences. Align credit flexibility with state and regional assessment policies, which leverage balanced forms of assessment to ensure meaningful learning and rigorous demonstration of mastery across a variety of contexts. Ensure that credits are transferable across K-12, postsecondary, and workforce contexts: that they are stackable, transferable, and aligned with career opportunities.

Oregon is a leader in credit flexibility. The state encourages and allows districts to award academic credit based on mastery rather than seat-time. Specifically, Oregon State Administrative Code 581-022-1131 allows a school district or charter school to award a student credit for one or more demonstrations of mastery: completing work designed to measure proficiency in class or out of class; passing an assessment designed to measure proficiency or mastery of identified standards; providing a portfolio of work demonstrating proficiency or mastery of identified standards; and/or providing documentation of prior learning activities or experiences that demonstrate proficiency or mastery.[57]

INCREASE CONNECTIVITY

Anytime anywhere learning requires access to internet connectivity. As has been made increasingly evident during COVID-19, there are households and communities across the country with limited or no access to the internet. Policymakers should enact initiatives to increase funding for broadband access as part of infrastructure strategy and funding.

Redesign curriculum and assessment to support universal pathways.

DEVELOP BALANCED SYSTEMS OF ASSESSMENT

Leverage flexibilities within the Every Student Succeeds Act (ESSA) to utilize performance assessments as evidence of mastery, to utilize multiple assessments over time to evaluate student learning (rather than single summative assessments), and to measure student learning at levels below and above grade level. Develop and integrate assessments of technical skills and workplace learning, included but not limited to skill-based technical assessments, performance-based assessments, graduation portfolios, credentials, and badges (Bae & Darling-Hammond). Ensure that learners are able to earn transferable credit for work-based learning.

PROMOTE DUAL AND CONCURRENT ENROLLMENT

Support learners to earn high school and postsecondary credit at the same time, and at no additional cost to the learner or school. Align dual and concurrent enrollment opportunities with regional workforce pathways, ensuring the attainment of credits and/or credentials that can transfer to multiple postsecondary and workforce pathways after graduation. Ensure equitable access to dual and concurrent enrollment programs, prioritizing access for traditionally underrepresented and marginalized communities.

Invest in innovative, robust, and relevant systems of learner development and advisement.

PRIORITIZE PERSONAL AND PROFESSIONAL SKILL DEVELOPMENT

Represent and prioritize social, emotional, and personal success skills within graduate profiles and state standards. Allocate sufficient funding for school, community, and work-based programs that provide robust opportunity for skill development, including formal and expanded learning opportunities. Increase access to skill development in

regions or neighborhoods with limited resources by funding for virtual tutoring in STEM and related fields.[58]

EXPAND COUNSELING, ADVISEMENT, AND NAVIGATION

Allocate funds to ensure ample and equitable distribution of school and community-based counselors and advisors. Provide funding to community colleges, colleges, and universities to provide high-touch advisement during and beyond key transitions to low-income, first-generation, and nontraditional learners as well as learners of color. Invest in strategic efforts to provide navigational support to opportunity youth, immigrant youth, youth entering pathway programs from detention centers, and any other disconnected youth.

New York State uses $1 million in federal Community Services Block Grant funds to improve immigrant communities' access to workforce development. Community action agencies and nonprofit partners in fourteen regions across the state fund a Community Navigator position that manages data on immigrant workforce needs, provides regular training, and oversees volunteers who could help immigrants access public services.[59]

CREATE OPPORTUNITIES FOR CAREER AWARENESS AND EXPOSURE

States and regions can invest in platforms that help learners identify career interests, explore regional labor market data, and find related training and development opportunities. Akin to a clearinghouse, such platforms can support occupational identity development from early awareness and exploration through more advanced work-based and postsecondary learning.

RECOMMENDATION #10

Support and scale innovative approaches to school and program design.

EXPAND COMPETENCY-BASED EDUCATION

Increase K-12 and postsecondary schools' capacity for competency-based education. Possible avenues for

expanding competency education include creating regional pilot sites that disseminate lessons learned, facilitating regional and statewide technical assistance, and increasing training for school leaders and educators.

Utah passed SB 143 (2016) to create a competency-based education pilot program. The Utah State Board of Education reviewed and authorized competency-based education pilots, providing grants and incentives to help piloting districts navigate the shift to competency-based learning. In 2017, Utah allocated additional funds for educators to take tours of competency-based schools across the country. In 2018, the state published a Competency-Based Education Framework based on learning in pilot sites. The framework provides guidance on the shifts required to implement competency-based education.

FUND, SUPPORT, AND EXPAND EFFECTIVE INNOVATIONS IN HIGH SCHOOL REDESIGN

Traditional high schools remain faithful to designs from over a century ago: they organize learners by age and measure learning by seat time; they adhere to a general education curriculum and rely largely on standardized assessments to rank and sort learners; they are modeled after norms that are rooted in assumptions of white supremacy; and they look to institutes of higher education to define standards of success for all learners. Achieving success in universal pathway systems requires redesigning high schools to be learner-centered, competency-based, culturally-responsive, and deeply connected to workforce, postsecondary education, and community. This is hard work, and sometimes slow, but it is possible. To enable universal pathways, states can invest in technical support for school redesign, enact policy that makes redesign normative rather than countercultural, create accountability systems that encourage and do not punish redesign, and create conditions that enable rather than stifle innovation.

FUND, SUPPORT, AND EXPAND EFFECTIVE INNOVATIONS IN POSTSECONDARY PROGRAM REDESIGN

Enabling universal pathways also requires making significant shifts to the design of postsecondary institutions, including community colleges, colleges, and universities. States can enable innovation in postsecondary education by articulating new quality frameworks that

align with competency-based, culturally-responsive, and pathway standards; working with Boards of Regents and other governing bodies to align accountability systems with quality frameworks; and providing grants and technical support for institutions to engage in redesign.

FUND, SUPPORT, AND EXPAND EFFECTIVE INNOVATIONS IN WORK-BASED LEARNING

Allocate sufficient funding to ensure the development and availability of work-based learning (paid internships of certified pre-apprenticeships) across all K-12 and postsecondary pathway programs, aligned with courses of study and workforce demand, and offering opportunities to earn stackable credentials. Articulate common quality indicators for work-based learning. Offer tax or other incentives to ensure high degree of workforce participation in the design and facilitation of work-based learning.

FUND, SUPPORT, AND EXPAND EFFECTIVE INNOVATIONS IN COMPETENCY-BASED LEARNING

Expand the implementation of competency-based learning in K-12, postsecondary, and work-based learning environments. Fund and support competency-based pilot programs in districts and regions, and/or invest in regional support centers that can assist with the implementation and expansion of competency-based practices.

RECOMMENDATION #11

Support and scale innovations that modernize and diversify, and prepare the teacher workforce.

MODERNIZE TEACHER PREPARATION

Incentivize innovation within postsecondary education to encourage the development of preparation programs that build teacher knowledge and skill in areas which align to competency-based and work-based learning and expanded learner outcomes, and to provide continuing education opportunities for existing professionals, including opportunities to earn micro-credentials, certificates, and advanced certificates that align with college and career readiness.

REDESIGN TEACHER LICENSURE AND CREDENTIALING

Align state licensure and credentialing requirements to the educator knowledge and skills required for competency-based and work-based learning. Ensure that licensure and credentialing processes align with learner-centered, competency-based approaches such as using performance assessment, providing credit for prior work, and advancing based on demonstrated mastery. Create incentives for teachers to earn the credentials necessary for teaching dual or concurrent enrollment courses.

DIVERSIFY THE TEACHER WORKFORCE

Make a state-level commitment to increasing diversity and representation in the teacher workforce, with the recognition that representation supports learner development and outcomes. Launch statewide and regional efforts to recruit and attract teachers of color, create non-traditional pathways into teaching, and increase access and affordability in teacher and leader preparation pathways.

INVEST IN CULTURAL COMPETENCY TRAINING

"Race-blind skills training is insufficient to address racial disparities and advance racial equity... States and localities that have recognized this have invested in training and technical assistance for workforce development professionals to ensure that their efforts consciously address racial disparities". Invest state resources that enable regions to develop cultural competency skills training opportunities for teachers, professors, and employer-mentors.

"Tennessee has a competency-based education pilot for schools and a micro-credential pilot for educator development. Tennessee's Personalized Learning Task Force informed the state's pilot initiatives and provided recommendations on the overall direction for the state to support personalized learning. The recommendations included piloting micro-credentialing to promote personalized professional development for teachers in implementing competency-based education and to expand student access to personalized learning. The state is working to expand its micro-credentialing pilot as a resource to all educators and to develop micro-credentials around the Tennessee Academic Standards."

Advocating

Achieving systems change for scale entails transformative change: shifts in individual and community beliefs, mindsets, and values. Advocating means calling attention to problems and communicating new ideas in order to shift public consciousness and, eventually, culture. Advocacy consists of communication, knowledge building, storytelling, data sharing, and other activities that affect transformational change by sharing knowledge and messages that influence mindsets. In the process of doing so, advocacy can also influence relational and structural change: it can engage coalitions that elevate new voices to positions of power and enact policies that disrupt systemic inequities.

RECOMMENDATION #12

Engage diverse stakeholders to share stories and experiences.

ENGAGE AND ELEVATE STORYTELLING

Often, it is dominant and powerful voices that tell the stories of change rather than the individuals and communities who lived the change. States can provide resources and support that allow learners, educators, parents, and employers to tell the stories of their experiences in pathways, and of their experiences during change. These stories may be told through a variety of media — film, podcast, blog, social media, and more. Their authenticity, relevance, and accessibility can help them resonate with families and communities, and make them powerful platforms for awareness and change.

SHARE LEARNING

Elevate and share the learning from states that are participating in the development of universal pathway systems. This may include process knowledge (reflections and insights on how to organize and navigate change) as well as content knowledge (the design and structure of programs and policies). Knowledge sharing through existing open and/or relational networks can help mobilize and support change across the country.

RECOMMENDATION #13

Invest in research, learning, and engagement efforts that build knowledge, will, and collective capacity to create universal pathways.

LEARN ABOUT PUBLIC OPINION

Ideas about the purpose and structure of education are deeply held by individuals and by our society, collectively. Evolving these ideas to be more inclusive of multiple pathways, of equity, and of learner agency requires understanding what they are, where they come from, and how they operate. One way to do this is to invest in research about public opinion to understand not only what the public thinks about education, but also how their ideas (and goals, aspirations, and occupational identities) are shaped by media messages, cultural biases, and other forces. Understanding public opinion might also mean using local surveys, focus groups, and design teams to illuminate communities' ideas about education, create new shared narratives, and design programs and solutions that are responsive to communities.

INVEST IN LONG TERM IMPACT EVALUATION

Impact data can make a powerful case for change. Invest in longitudinal research that both allows for continuous improvement and, over time, shows the social, economic, and educational outcomes of pathway systems. Consider designing research studies that are holistic — that show not only educational attainment data but also educational engagement, social and emotional development, and personal outcomes. Also consider research design that shows long-term return on investment for individuals, regions, and the state.

RECOMMENDATION #14

Advocate for policy and systemic solutions that will promote social and economic equity.

ADDRESS SYSTEMIC FUNDING INEQUITIES

Conduct research to understand how funding inequities

result in lower levels of funding to K-12, postsecondary, and other programs of study primarily serving Black, Indigenous, and other people of color. Enact policy that disrupts inequities to ensure not only equal, but equitable levels of funding.

MAKE POSTSECONDARY EDUCATION MORE AFFORDABLE

Across the nation, more than forty-five cities and two states have enacted college for all programs that make college affordable or free for all qualifying learners. Enact policy and create new public-private funding mechanisms to lower the cost of two-year and four-year college or apprenticeship programs for all learners, especially Black, Indigenous, Latinx, and low-income learners. Create programs and policies that reduce or eliminate student debt.

DISRUPT BARRIERS TO ACCESS AND ATTAINMENT

Enact state, regional, and institutional policies that proactively disrupt barriers to success and promote access and attainment. Policies that overcome barriers might include district policies that ensure pathway programs are located and accessible to poor communities and communities of color; district policies that prevent biased tracking and over/underrepresentation in special education; college or community college policies that help low-income learners avoid no credit remedial work and identify a workforce-aligned course of study; or college or community college policies that ensure all incoming learners can earn credit for prior learning, with parity for dual credit, advanced placement, and work-based learning.

PROMOTE EQUITABLE ECONOMIC DEVELOPMENT

Many cities have seen improved growth and prosperity, adding jobs, improving productivity, and improving standards of living. Few have achieved inclusivity; for the most part, cities and districts that have realized economic growth have failed to distribute these benefits equitably or to reduce disparities between white communities and communities of color.[60] Racial inequity creates a limiting condition for economic mobility pathways by reducing opportunities for employment, increasing barriers to success, and limiting overall economic vitality and development. State and city leaders should invest in policy areas that promote equitable economic development,

including: good jobs initiatives, economic security, healthy neighborhoods, housing stability, social justice, and — as emphasized throughout this book — opportunities to create "homegrown talent" by creating viable pathways from K-12 schools to career.[61]

INVEST IN HEALTHY AND CONNECTED COMMUNITIES

Environmental factors influence health and development, which in turn influence young people's ability to succeed. Any effort to increase economic opportunity for young people must take into account the neighborhoods where they live and prioritize health and wellness in those places. Policy areas might include reducing exposure to environmental pollutants; increasing access to clean water, air, and open space; increasing access to healthy food; and building core infrastructure, including but not limited to broadband connectivity in every home.

PROMOTE RACIALLY EQUITABLE RECOVERY

COVID-19 has revealed the depth and extent of inequality in communities around the country. Recovery will mean putting more people back to work and preparing people for work in a changing landscape; successful recovery both enables and is enabled by the creation of economic mobility pathways. Equitable recovery efforts will follow five essential principles: centering racial equity to ensure that the most vulnerable are prioritized, and that race awareness guides decision-making; putting people first; investing in community infrastructure; building an equitable economy; and protecting or expanding voting rights and civic participation.[62]

PolicyLink, a national research and action institute dedicated to racial equity, launched an initiative called All-In Cities. All-In Cities partners with local community coalitions to enable policy action, data analysis, and strategic planning related to equitable economic development. Currently operating in more than thirty cities, All-In Cities helps local leaders through learning communities, technical advisement, and advocacy.

CONCLUSION

The siloed, linear, and time-bound education system that we have in place today was designed over one hundred years ago to send some young people to college, send some to the trades, and to assimilate the rest into a dominant culture. Today, the evolving realities of work and learning demand that all learners receive some postsecondary education, but also show that a four-year degree is not the sole pathway to mobility. The call for equity and multiculturalism, and the incredible costs of increasing inequality, make the inequitable outcomes of our current education system intolerable. Now is not a time for incremental change. Now is a time for transformative change.

This book calls for change that is extensive, broad, and deep. It makes this call during a time of tremendous national uncertainty: a pandemic, a recession, and a social movement. While some people may understandably see these conditions as ones that inspire care and caution, we disagree: they demand and enable bold vision and real change.

There is demand for systemic change. Public demand for justice and equity creates not only an opportunity but an urgency for education leaders to offer a new and bold vision for the future of education, and to author this vision in partnership with Black, Latinx, Indigenous, and other people of color as well as people from low-income communities who have been marginalized in the traditional system.

The United States is experiencing massive political, social, and economic upheaval accelerated by the implications of a global pandemic. Time and again in our history, we see that systemic changes happen when norms and ways of life are disrupted. This is not only because these disruptions compel policy solutions and new investments in public systems; it is also because "sustainable change happens when people begin to see the world differently...creative disruption is the initiation of small movements, the opening up of new avenues of consideration and perspective."[63] A report from the Pew Research Center shows that two-thirds of US adults support the Black Lives Matter movement. Thirty-eight percent strongly support it. While the Black Lives Matter movement may not have any direct relationship to calls for educational innovation, it nonetheless indicates widespread, bipartisan support for systemic change in American institutions. Through both lenses — the lens that says change occurs through top-down policy

and infrastructure development, and the lens that says change occurs as people shift their mental models and begin to act differently — we see that disruption is an engine of lasting change. We call on leaders to see this moment in time as a unique opportunity for structural and cultural change.

Finally, the change described in this book is not unprecedented; it is simply not part of the mainstream conversation. Across the nation there are hundreds, if not thousands, of programs implementing what is described here: creating pre-apprenticeship and work-based pathways into careers, redesigning high schools and postsecondary institutions, enacting policy at the state level to expand career and technical learning, building learner support networks, and creating dynamic and learner-centered data systems. While significant strategy and mobilization are needed to scale these proof points, it is nonetheless powerful that they exist. We have models to point to. We have success data. We have champions. We are at a tipping point where pathway programs can be brought into the mainstream of public education for all learners.

There is demand. There is creative disruption. There is a tipping point. Now is the time for systemic change in education. We call on leaders to embrace bold vision and mobilize for real change.

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