

AMERICA ACHIEVES



Getting Real About Career Readiness: A Focus on Cross-Sector Competencies

America Achieves Educator Networks

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Executive Summary

“As we look at how to help education strengthen democracy, there's nothing more important given these economic changes than equipping young people, and people of all ages, with the skills they need to get a good job and a good career in a fast-changing economy. If we don't succeed in adapting the education skills of young people to get a good job and good career, the very foundations of our democracy are at risk.”

- Jon Schnur, CEO of America Achieves, at the 2017 GLN Convening

In December 2017, America Achieves, in partnership with the Organisation for Economic Co-operation and Development (OECD), hosted the Global Learning Network 2017 Convening of World-Leading Learners—30 schools invited from six countries. Together, this group and a variety of national and international experts reflected on the changing nature of the economy, workforce demands, related cross-sector competencies, implications for education, and promising new strategies to better prepare today's young people for career and life success. Among the emerging themes was the importance of identifying the knowledge, skills, and dispositions (not just degrees or certifications) necessary for young people to access good jobs and meaningfully participate in society. As these conversations progressed, the America Achieves Educator Networks recorded panels and interviews, documented key content, and reviewed the research to create a resource that would be beneficial to educators nationally and abroad. We specifically focused on what it means to be career-ready, how schools can develop students' competencies for success across industry sectors, and the important first steps in this process.

Major Economic Trends Requires New Education Response, Beyond Rhetoric

It doesn't take much to realize that global, national, and regional economies are shifting. The rates of change, interconnectedness of changes, and effects on our ways of viewing the world and living our lives make prior economic shifts (e.g., from the agrarian to the industrial) seem more like evolutions than revolutions, or like slow waves versus a tsunami.¹ The dual influences of technology and globalization, in particular, are causing the world and the workplace to change faster than ever, creating new demands in the knowledge, skills, and dispositions needed for career and life success.

While education level is still related to employability and earnings, “degree is not destiny.” Many of the degrees and credentials that most mattered in the not-too-distant past may not have the same meaning soon. While it's projected that by 2020 at least 65% of jobs will require education past the high school level² and it's true that on average, today's 4-year college graduates earn more than a high school graduate, it doesn't mean that all jobs require a four-year degree.¹ Increasingly, it's skills that matter; as the world of work changes and automation advances and takes over routine work, cross-sector competencies are becoming even more relevant. People increasingly must be much more able to communicate effectively, work collaboratively, think critically, and engage authentically with others in a global context.

K-12, as well as postsecondary education, must adapt to ensure our students develop those skills most in-demand. While states, districts, and schools continue to voice a commitment to “college and career readiness,” they are

¹ It is notable that by retirement age, those with a bachelor's degree or higher have a net worth four times higher compared to those with only a high school diploma. Georgetown Center on Education and the Workforce, [The College Payoff](#), 2011

increasingly critiqued for seeming to treat “career readiness” as an afterthought. They are now being called on to move beyond the rhetoric and improve on their career readiness efforts, and many educators are reacting in fast order. But are we doing so with any greater clarity about our expectations for what a career-ready graduate might look like?

Common Vision Needed: Cross-Sector Competencies

Many high schools are responding to the urgent need to adapt by redesigning their CTE pathways, expanding the number of industry-based credentials offered, offering more dual enrollment options, developing work-based learning opportunities, expanding industry partnerships, developing STEM/STEAM programs and career academies, and/or rethinking core curriculum - including through project-based learning and more core content and CTE integration. While there is an evidence base to support most of these strategies, there is also considerable evidence to suggest that these interventions are not silver bullets to prepare students for the unknown world ahead and that without clearly defining goals for them, they are likely to miss the targets.

Whatever approach one takes to responding to our fast-changing economy and world of work, it needs to be driven by very clear and measurable definitions for what students need to know and be able to do to be successful in 21st century careers and life. As highlighted in the paper, there are many frameworks and ways of categorizing and defining the needed skills; we propose that employer and community demands for skills be considered in three broad categories, regardless of the framework:

1. Academics and core content;
2. Career and industry-specific technical knowledge and skills; and
3. Cross-sector, employability knowledge, skills, and dispositions.

While many communities have already defined their targets in the first and second areas, the work around setting expectations in the third category, what can be summarized as *cross-sector competencies*, is less clear and, we argue, is an essential first step.

Process for Developing a Shared Vision

Toward this end, the paper synthesizes some of the best thinking on the topic, including workforce data and existing frameworks, highlights local school and district efforts, links to additional resources from research and data to school websites, and offers the following guiding questions and recommendations for school- and district-level work:

1. Who are your key stakeholders and how will they be involved in the process of developing and implementing your school or district’s vision of a career- and life-ready graduate?
2. What existing state and local standards and/or requirements are schools, staffs, and students already accountable for? How can cross-sector competencies be interwoven with academic and technical skills?
3. How can you ensure against different sets of expectations for different students?
4. To what extent do you have a developmental vision and approach to mastery of the competencies?
5. To what extent is multilingualism built into your competency framework and/or reinforced or undermined as a priority?
6. How do selected competencies set students up for life success and help them become productive community members and citizens?
7. How do you define and measure success?

Getting Real about Career Readiness: A Focus on Cross-Sector Competencies is the first in a series of multi-media white papers on promising education practices for preparing students for the changing world of work. It reflects both the learning and questions that emerged in planning for and participating in the GLN 2017 convening and America Achieves' ongoing interaction with the schools, expert participants, and our partners in related projects. While this is not an exhaustive review, we hope it will provide a powerful lens on the changing world of work and some important first steps K-12 education can take to better prepare our students for it—notably developing a profile of a career-ready graduate and building consensus and planning strategically around that vision.

Getting Real About Career Readiness: A Focus on Cross-Sector Competencies

Introduction

In December 2017, America Achieves, in partnership with the Organisation for Economic Co-operation and Development (OECD), invited 30 schools from six countries (the US, Canada, Germany, Switzerland, South Korea, and Singapore) to participate in the Global Learning Network 2017 Convening of World-Leading Learners. Representatives from this carefully selected cadre of schools and national and international experts from economics, industry, workforce development, and education came together to reflect on the changing nature of the economy, workforce demands, related cross-sector competencies, implications for education, and promising new strategies to better prepare today's young people for career and life success. Across presentations, panel discussions, school profiles, and small group discussions—formal and informal—participants developed a shared sense of urgency and identified some common questions and areas for further learning. Among the emerging themes was the importance of identifying the knowledge, skills, and dispositions (not just degrees or certifications) necessary for young people to access good jobs and meaningfully participate in society. As these conversations progressed, the America Achieves Educator Networks recorded panels and interviews, documented key content, and reviewed the research to create a resource that would be beneficial to educators nationally and abroad. We specifically focused on what it means to be career-ready, how schools can develop students' competencies for success across industry sectors, and the important first steps in this process.

“As we look at how to help education strengthen democracy, there's nothing more important given these economic changes than equipping young people, and people of all ages, with the skills they need to get a good job and a good career in a fast-changing economy. If we don't succeed in adapting the education skills of young people to get a good job and good career, the very foundations of our democracy are at risk.”

- Jon Schnur, CEO of America Achieves, at the 2017 GLN Convening

Getting Real about Career Readiness: A Focus on Cross-Sector Competencies is the first in a series of multi-media white papers on promising education practices for preparing students for the changing world of work from the [America Achieves Educator Networks](#). It reflects both the learning and questions that emerged in planning for and participating in the GLN convening and America Achieves' ongoing interaction with the schools, expert participants, and our partners in related projects. The paper synthesizes some of the best thinking on the topic, links to additional resources from research and data to school websites, highlights local school and district efforts, and offers some guiding questions and recommendations for school- and district-level work. As you read, we encourage you to take advantage of the many embedded resources and reflect on policies and practices in your own school(s).

While this is not an exhaustive review, we hope it will provide a powerful lens on the changing world of work and some important first steps K-12 educators can take to better prepare our students for it. As we continue in our mission of linking education to economic opportunity and lifelong success, we look forward to continuing to connect and collaborate around promising practices for career readiness.

From Rhetoric to Readiness

It is evident that the global, national, and regional economies are shifting significantly. Jobs that require employees to perform services and develop new ideas are advancing rapidly, while automation is taking over jobs that center around routine tasks. While the phenomenon of economic shifts is not new, the last few centuries have seen dramatic shifts from agrarian to industrial and to information ages. As a nation, our shares of employees who help grow and make things are being outpaced by those who provide services. Technology is causing the world and the workplace to change faster than ever.³

According to the [World Economic Forum](#), “The skills needed to work today change so fast that no education system can keep up with the constant need to reinvent how we work and live together. Most importantly, the radical changes in our society mean that young people need new kinds of skills, many of which are not even fully understood or codified for learning.”⁴

“You have robots taking over whole factories. You have augmented reality bringing the world's most advanced right into what you do immediately. That precisely means that the world no longer rewards people just for what they know. Google knows everything. It rewards people for what they can do with what they know. It actually doesn't diminish the importance of knowledge, but it shifts the importance of knowledge from knowing something to having a deeper understanding.”

- *Andreas Schleicher, Director for the Directorate of Education and Skills at the OECD, at the [GLN 2017 Convening](#)*



Watch Andreas Schleicher's full speech on [YouTube](#).

As the economy changes, so too do the demands of business and industry for their employees. As different sectors replace others in experiencing high growth and creating high demand for specific knowledge, skills, and dispositions, education at all levels is being pushed to respond. Schools that, over the last decade of K-12 reform, focused on “college

and career readiness” are increasingly critiqued for their use of the “well-worn cliché” and failure to define and meaningfully address career readiness for the changing world of work. As Nancy Hoffman writes,

“While the phrase ‘college and career readiness’ appears seemingly everywhere in the discourse about the goals of high school, the ‘career readiness’ part often seems like an afterthought...What it means to be ‘ready’ for career is complicated and deserves real attention on its own” and not just as a “by-product of academic studies.”⁵

Schools are now being called on to get real and improve their career readiness efforts, and many are reacting in fast order. But are we doing so with any greater clarity about our expectations for what a career-ready graduate might look like? Are we still measuring progress with proxies that limit us to measures of academic learning (e.g., state tests of math or English proficiency, SAT, and ACT) or access to or development of technical skills (e.g., CTE pathways completed, industry credentials earned - often with little regard for type or quality)?ⁱⁱ Are we focused on the cross-sector competencies that are in most demand? And are we ensuring their development among all students or are we limiting access to old divisions of “college prep” and “vocational education” or career and technical education tracks? Yong Zhao, in his provocatively named book on the future of American education, *Catching Up or Leading the Way*, reminds us that “major shifts in employment structure indicate dramatic changes in the need for different kinds of talent.”⁶ To what extent do we understand the shifts and are we prepared to meaningfully take them on?

Major Economic Trends

Across history, the US and the world have undergone several, significant economic changes, most notably from an agrarian to industrial age. As described by the [World Economic Forum](#), “The impact of the first Industrial Revolution, which began in Britain in the 1780s did not fully begin to be felt until the 1830s and 1840s.” That change, it argues, “came at a relatively slow pace, like long waves in the ocean.” In contrast, today “technological change happens like a tsunami. You see small signs at the shore, and suddenly the wave sweeps in,” making prior shifts seem more like evolutions compared to the fast-paced information technology revolution.⁷

Another major difference is the level of interconnectedness in this new age of information technology. “This revolution takes place inside a complex ecosystem which comprises business, governmental and societal dimensions” and where technology, security, economic growth, and sustainability are also closely linked and interdependent. Breakthroughs in artificial intelligence, robotics, energy, autonomous vehicles, and more will lead to both new possibilities and further disruption.

And each change in this new age not only affects or disrupts the larger ecosystem, it also affects us. The “world of work” is not only completely different than it was 50 years ago, it’s dramatically different from what it was just five or ten years ago. And it’s not just the world of work, the things we do, or the tools we use that is changing. The “tsunami” continues to affect how we view the world (e.g., ideas of ownership, privacy, collaboration, work-life balance), how we think, and who we are. As the World Economic Forum asserts, “it is changing us, it is changing our lives.”

ⁱⁱ For example, an AdvanceCTE brief produced through the New Skills for Youth initiative, reported that, although at least “11 states currently include the attainment of industry-recognized credentials within their school accountability systems as a way that secondary students can demonstrate career readiness,” the existence of more than 4,000 certification bodies in the US issuing credentials across different industries, makes it “difficult for employers, states and students to ascertain the value of a given credential over another in the labor market. ... while some credentials are required by employers in a particular industry and provide tremendous value for students seeking jobs or promotions, others have little or no value in the labor market” (AdvanceCTE, [Credentials of Value](#), 2016:1).

We are in the midst of what are arguably the most significant, rapid, and continuous shifts in the economy and society. Additional shifts in technology and the global economy are expected, yet difficult to predict, requiring new levels of flexibility. Given the rate and scale of economic change that we are now experiencing, many are struggling to predict and prepare for the future, leaving us with more questions than answers, as exemplified by the common headlines and TED Talks of the day: “[Will AI Take Over the World](#),”⁸ “[Will my job be replaced by a robot?](#),”⁹ “[Robots: Is your job at risk?](#),”¹⁰ “[What Will Future Jobs Look Like?](#),”¹¹ “[Will Globalization Take Away Your Job?](#),”¹² and “[Will Automation Take Away All of Our Jobs?](#).”¹³ Indeed, there is uncertainty about exactly how the economy will continue to shift and what the implications may be for specific regions, industry sectors and jobs, or groups of workers. As the National Academies of Science, Engineering, and Medicine concluded in its report on building a skilled workforce, “there is considerable controversy about the nature of U.S. labor market shortages, skills gaps or mismatches, and the analytical approaches used to develop these estimates.”¹⁴ There is, however, consensus on some important points, notably that globalization and automation are dramatically changing the nature of work and workforce demands and that success in careers and life requires new and evolving sets of skills, for which both America’s current workforce and our young people are woefully under-prepared.



A student at [Roscoe Collegiate High School](#), a Global Learning Network World-Leading Learner school, works on a drone.

Globalization and Technology Innovation

When Friedman declared “the world is flat”¹⁵ he was describing a range of changes in politics and power structures, technologies, and cultures that have brought more people across great geographic distances into shared economic, cultural, and political interdependence. As Zhao illustrates,

“In 2004, worldwide trade in merchandise and services contributed to 55 percent of the world’s gross domestic product (GDP). Global flows of foreign direct investment have more than doubled relative to GDP since 1990, reaching 28.4 percent of GDP in 2004. Similarly, migration and international travel have increased dramatically. In 2005 more than 190 million people, or 3 percent of the world’s population, lived in a country they were not born in. Workers’ remittances and compensation of employees - that is, transfers by migrant workers and wages and salaries earned by nonresident workers - reached \$227

trillion in the received category in 2004. In the same year, nearly 800 million tourists traveled to another country (World Bank, 2006).¹⁶

Goods, services, money, information, and people are flowing across national borders faster than ever before. This dramatically expanding free movement means production processes are increasingly shared across geographies (e.g., an American-made car may include components made in nine different countries) and cultural identities are increasingly being confronted and renegotiated. These call for employees who are increasingly facile in communication, collaboration, conflict resolution, critical thinking, and a variety of other in-demand employability skills, often referred to as “soft skills,” or what in this paper we will refer to as **cross-sector competencies**.

Technology is also shifting the structure of jobs. The [World Economic Forum](#) reports that in the next eight years around 1.4 million jobs will be disrupted by advances in technology. 70% of these jobs will simply no longer exist, and the skills required for the remaining ones will shift significantly because of factors like automation for routine tasks. Over 40% of those previously employed in these jobs will have a difficult time securing new work if they do not possess the in-demand and necessary new skills.¹⁷

The skills that we refer to as cross-sector competencies are often called “soft” or “non-cognitive” skills.ⁱⁱⁱ We refrain from using these terms because applying and adapting specific skills like communication, collaboration, and creative problem solving across multiple contexts and in real time can be quite cognitively demanding, aren’t all intuitively developed, and may require explicit, “hard” training. Preparing students with these skills is essential to work, civic engagement, and independent living.

Implications for Education

These major shifts have implications for the value of our current education systems; many of the degrees and credentials that most mattered in the not-too-distant past may not have the same meaning in the near future. For example, in 1973, only 28% of jobs required a postsecondary education, but it is projected that by 2020 at least 65% of jobs will require education past the high school level.¹⁸ And while it is true that on average, today’s 4-year college graduates earn more than a high school graduate, it doesn’t mean that all jobs require a four-year degree.^{iv}

As estimated in [Recovery: Job Growth and Education Requirements Through 2020](#), 30% of jobs in 2020 will be in middle-skills, requiring education and credentials beyond high school, but not necessarily 4-year degrees:

- 35% of jobs will require bachelor’s degree;
- 30% will require some postsecondary education/training; and
- 36% will not require education beyond high school.¹⁹

ⁱⁱⁱBurning Glass Technologies offers some discussion on problems with the “soft-skills” language: “we’ve favored the terms “baseline skills” and “technical skills” over the widely used concepts of “hard” and “soft” skills. The definition of soft skills is, as the name implies, somewhat fuzzy. Hard skills are usually defined as technical skills that can be formally taught, such as programming or bookkeeping. Soft skills thus become intuitive “people skills,” often considered part of emotional intelligence. But many programs exist to train people in soft skills like customer service, while many hard skills are often self-taught” (The Human Factor, 2015:7).

^{iv} It is notable that by retirement age, those with a bachelor’s degree or higher have a net worth four times higher compared to those with only a high school diploma. Georgetown Center on Education and the Workforce, [The College Payoff](#), 2011

From 2010 to 2016, 11.5 million out of 11.6 million new jobs went to workers with education beyond high school and with at least some postsecondary education (3.1 million to those with some college or an Associate’s degree, 4.6 million to those with a Bachelor’s degree, and 3.8 to those with a Master’s).²⁰ A report from NCES found that in 2016, 58% of labor force participants had some form of postsecondary credential.²¹

Tony Carnevale, a research Professor and Director of the Georgetown University Center on Education and the Workforce, found that:

- 43% of young workers with occupational licenses out-earn the average associate’s recipient;
- 27% with a license out-earn those with a bachelor’s degree; and
- 31% with an associate’s degree out-earn bachelor’s degree holders.²²

“While it remains generally true that the more education you have, the higher your lifetime earnings, nearly one-third of those with two-year degrees were earning more than average four-year-degree holders... [what matters is] how well the skills learned align with labor market demands—not the amount of time spent in college.”

- Hoffman & Schwartz²³



Students from the [Roscoe Collegiate High School](#) in Texas work in the school’s hands-on learning lab. Students at the school can earn postsecondary credentials while still in high school.

Skills Matter

As argued by the National Science Board,²⁴ based on data collected over decades, in the United States today, “degree is not destiny.” U.S. students are less constrained by degree fields in pursuing various career options. Employers are also more fluid in how they define and how employees acquire the necessary skills for employment. Success is increasingly defined by the employee’s “bundles of skills,” rather than by the general credential or degree.

Watch a video from Burning Glass Technologies, an analytics company that uses real-time job data to analyze the labor market, about how jobs are bundles of skills and education's role [here](#). For more on the important role of skills from Burning Glass at the GLN convening watch [here](#).

According to the [International Assessment of Adult Competencies](#) (PIACC), there are significant mismatches or shortages between the skills of the current workforce and those demanded by the jobs of today and tomorrow. In 2017, Burning Glass Technologies reported that demand for workers in leading industries (including healthcare, business and finance, computers and mathematics, and sales) exceeded the supply of skilled employees, resulting in 4.4 million job openings. In the same year, occupations that required middle skill levels (including welders, administrative assistants, and computer support specialists) had 13% more job openings than available workers.²⁵

Together, these and many of the harsh realities faced by specific communities (e.g., “rust belt states”) and sectors (e.g., auto production), are creating a growing sense of urgency around the need for education systems across the K-16 spectrum to adapt. [New Skills for Youth](#), an initiative of JPMorgan Chase in partnership with (Council of Chief State School Officers) CCSSO, the National Association of State Directors of Career Technical Education Consortium and Education Strategy Group, focuses on developing and supporting strategies to develop what it terms “demand-driven skills.” Additionally, many high schools are responding by redesigning their CTE pathways, expanding the number of industry-based credentials offered, offering more dual enrollment options, developing work-based learning opportunities, expanding industry partnerships, developing STEM/STEAM programs and career academies, and/or rethinking core curriculum - including through project-based learning and more core content and CTE integration. While there is an evidence base to support most of these strategies, there is also considerable evidence to suggest that these interventions are not silver bullets to prepare students for the unknown world ahead and that without clearly defining goals for them, they are likely to miss the targets. If we are to get real about career readiness in the context of our fast-changing economy and world of work, we need to be driven by very clear and measurable definitions for what students need to know and be able to do to be successful in 21st century careers and life.

Whatever approach one takes to responding to our fast-changing economy and world of work, it needs to be driven by very clear and measurable definitions for what students need to know and be able to do to be successful in 21st century careers and life.

The pages that follow describe the need to define these cross-sector competencies, as well as examples of how others have defined them. Included in this paper are some points of consensus and how the process of defining cross-sector competencies can be leveraged to support more meaningful career readiness work. We know that to be successful at scale we need to be purposeful and design with the end in mind. In this case, that means creating a clear vision of and building our work around what it means to be a career-ready graduate, lifelong learner, and productive citizen.

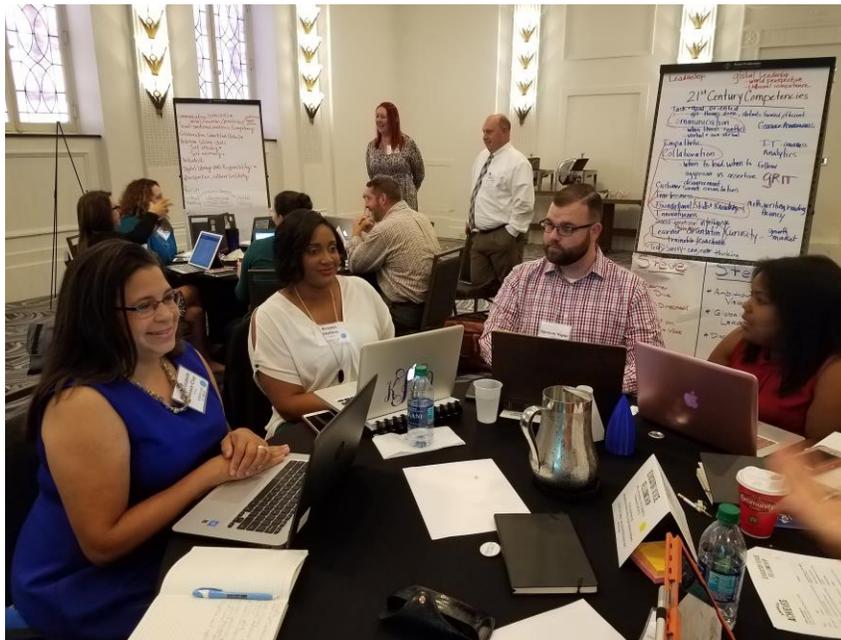
Common Vision as a Necessary Starting Point

The history of school reform, and change management more broadly, has taught us that even the most necessary and noble improvement efforts are unlikely to leave a lasting impact if they are not grounded in a clearly articulated vision of success. The current sense of urgency and surge of activity in the career readiness space — as evidenced in everything

from new CTE career pathways to new accountability measures in ESSA state plans — is encouraging. However, if these activities are not leveraged around a shared vision around 21st century learning and what a career-ready graduate looks like (including the cross-sector competencies they possess), there is a concern that worthwhile initiatives will result neither in program coherence, meaningful community buy-in and support, nor the outcomes that the employers are demanding. Without a shared vision developed with the input of multiple stakeholders, there will be a lack of clarity for students and parents, educators, and community members around what it means to be successful.

Innovation, whether in the private or public sectors, relies in large part on the interaction, learning, and shared commitment of a variety of actors within and beyond the specific organization. This is especially true in efforts to improve schooling to adapt to the changing demands for meaningful global citizenship and workforce participation. It is therefore crucial that schools, in partnership with their community and business and industry, develop clear and consistent expectations for what a career-ready graduate looks like, rather than moving forward too aggressively with new models and initiatives aimed at 21st century learning.

America Achieves has tried to demonstrate this process in its work through the [Educator Voice Fellowship](#), a strategic effort to engage talented educators and leverage their expertise and voice in solving real problems. As part of a current project in Louisiana to develop a new career exploration course, the [America Achieves Louisiana Educator Voice Fellows](#) and Louisiana Department of Education leaders reviewed a variety of existing 21st century frameworks; tried to identify which of these competencies were addressed in existing state standards; visited and talked to employers from the state’s high-growth, high-demand industry sectors; and considered the developmental nature of key competencies to determine the focus of career development work for the planned middle and high school course.



Participants in the Louisiana [Educator Voice Fellowship for 21st Century Learnings](#) work to define core competencies and design a new career development course to prepare all Louisiana public school students for career and life success.

A related America Achieves Fellowship was recently launched in [Colorado](#), and the diverse group of educators is taking a similar approach to identifying cross-sector competencies. The Fellows are starting the development of industry-aligned, exemplary performance tasks (to serve as graduate capstone projects) by reviewing the state’s suggested “essential skills” and identifying and defining cross-sector competencies in the context of their local communities. In

fact, the process of exploring and defining these attributes has deepened both understanding and capacity to develop these tasks and to more meaningfully engage stakeholders in the work.

As we will showcase later in this paper, there are many schools and districts that have undertaken similar processes. At the GLN Convening, Tony Donen, Principal of [STEM School Chattanooga](#), shared that his school's mission is to help students to think critically, to collaborate, and to innovate. His school focuses on both process skills and content, with a comprehensive framework around this shared vision. STEM School Chattanooga has grounded all its work—particularly practices in both project-based learning and industry partnerships, in its comprehensive framework for cross-sector competencies and content learning.

Hans K. Meeder, founder of the National Center for College and Career Transitions, writes in his 2016 book [The Power and Promise of Pathways](#),

“Several times in meetings I have attended with educators and employers to discuss career readiness, I have heard the employer say, ‘I just want someone who shows up on time and looks me in the eye.’ While this statement reflects a real frustration the employer is experiencing, the reality is that an employer really wants much more... And for educators to change their practice, they need much more specificity on what employers need and expect.”²⁶

He further describes some of the many such efforts to define employer wants and needs for educators, emphasizing the importance of schools and districts developing and adopting a definition of career and life readiness and using it across stakeholders and school improvement planning and implementation efforts. While there are many ways of categorizing cross-sector competencies, Meeder divides these competencies into seven areas. The first of which, applied knowledge, includes “applied academic skills,” “critical thinking skills,” and “career technical skills,” with the others focusing primarily on interpersonal and relational, executive functioning and communication, and career, postsecondary, and community navigation skills.

ACT also notes the importance of career readiness by defining it “as the level of ‘foundational skills’ an individual needs for success in a career pathway or career cluster, coupled with the level of ‘career planning skills’ needed to advance within a career path or transition to other career paths.”²⁷ ACT further argues that:

“The combination of foundational cognitive and non-cognitive skills, along with career planning skills, provides a framework for career readiness...and all three have been shown to contribute to career success. Two types of foundational skills make up career readiness. (1) Cognitive skills include both academic and workplace domains. The necessary level of cognitive skills is contingent on the career path and an individual's location on that path at any point during an individual's career. Examples include reading, math, critical thinking, and problem-solving. (2) Non-Cognitive skills, also known as personal effectiveness or soft skills, are personal characteristics and behavioral skills applicable across a broad range of settings. Examples include adaptability, communication skills, cooperation, discipline, and integrity... These skills are foundational skills: they are the fundamental, portable skills that are critical to training and workplace success. These skills are fundamental in that they serve as a basis—the foundation—for supporting more advanced skill development. And they are portable because, rather than being job-specific, they can be applied at some level across a wide variety of occupations”²⁸



Students work collaboratively outdoors at [Freiherr-vom-Stein-Schule Neumünster](#), a school in Germany designated as a Global Learning Network World-Leading Learner.

Building on findings and recommendations from the National Research Council²⁹ and their investments in a variety of school improvement efforts over several years, the William and Flora Hewlett Foundation argues that “students need a combination of cognitive, interpersonal, and intrapersonal competencies, and they must be able to use their knowledge and skills to solve novel problems.”³⁰

The Foundation recommends that “any contemporary definition of what it means for our students to be well prepared for the challenges they face in the real world” needs to develop six competencies it refers to collectively as “deeper learning:”

- Mastery of core academic content; and
- Critical thinking and problem solving.

“Students must be able to interact with others, building interpersonal competencies, including:”

- Collaboration; and
- Effective communication.

“Students must be able to engage in self-management through interpersonal competencies:”

- Learning how to learn; and
- Academic or learning mind-sets.³¹

The NEA’s [Partnership for 21st Century Skills](#), a coalition of educators and business leaders, initially organized their competencies across four categories: core subjects; learning and innovation skills; information, media, and technology skills; life and career skills. Richard Murnane and Frank Levy, in their ground-breaking book [Teaching the New Basic Skills](#), described these skills for the new economy as hard skills (basic math, reading, and problem solving), soft skills (collaboration and communication), and using computers.³²



Students collaborate at the [FCN Learning Lab](#), a Global Learning Network World-Leading Learner school in South Korea.

While there are many frameworks and ways of categorizing and defining the needed skills, we propose that employer and community demands for skills be considered in three broad categories, regardless of the framework:

1. Academics and core content;
2. Career and industry-specific technical knowledge and skills; and
3. Cross-sector, employability knowledge, skills, and dispositions.

Through analysis of this organization, we can be encouraged by the fact that most communities, via state and local content standards in literacy, math, science, social studies and approved CTE standards, pathways and credentials, have already defined their targets in the first and second areas. It is in this third area, what can be summarized as cross-sector competencies that are in high demand across industries and careers, that less attention has been paid and much more is needed.

Importance of Cross-Sector Competencies

Burning Glass Technologies, emphasized the importance of these cross-sector competencies in their 2015 report, [The Human Factor: The Hard time Employers Have Finding Soft Skills](#):

“Foundational or ‘soft’ skills occupy an unusual position in the debate over America’s workforce. Employers say these skills are hard to find, but they are also notoriously hard to define. Soft skills are called crucial and then treated dismissively in the next breath, as if these were abilities any child should have. ‘Works well with others’ is a cliché on a school report card, but businesses grind to a halt when employees can’t meet deadlines, treat customers with respect, or waste time scrambling to properly format a document.”³³

The cross-sector competencies, like communication, collaboration, creativity and critical thinking, are becoming increasingly necessary in a world of work that’s less about what you know and more about what you can do with what you know.³⁴ It is estimated that by 2020, 52% of jobs will require a higher level of these sorts of skills, notably creativity, logical reasoning, and problem sensitivity.³⁵

In fact, many argue that in an economy that is shifting like ours is, the value of cross-sector competencies is even greater. Both [McKinsey](#) and [PwC](#), among others, posit that advances in technology and automation in the workplace, as described earlier, will make room for new occupations that require deeper interpersonal skills and social and emotional capabilities. As routine work is increasingly automated, skills like communication, critical thinking, and collaboration become more important.³⁶ These shifts will likewise amplify the need for deeper thinking and human capabilities like leadership, empathy, creativity, and problem solving.³⁷

Indeed, cross-sector competencies are becoming increasingly in demand by employers. For example, it is estimated that by 2020, 52% of jobs will require a higher level of cross-sector competencies, including creativity, logical reasoning, and problem sensitivity.³⁸ These projections are supported by what business and industry leaders are currently saying. The 2013 Georgetown Report [Recovery: Job Growth and Education Requirements Through 2020](#) states that the top skills required by high-growth and high-demand jobs include active listening, critical thinking, and speaking—all considered to be communications competencies. Notably, nearly half of the top skills employers look for fall into the communications category. In Indiana, [industry leaders stated](#) that the top three most important competency groups are relational skills, collaboration, and integrity.³⁹ CEOs across America in a PWC report also state that the top competencies they look for include problem-solving, adaptability, collaboration, leadership, creativity and innovation - yet they struggled to find employees that possess these competencies.⁴⁰ The bottom line is that a combination of these cross-sector competencies are in-demand and also viewed as foundational for employees acquiring more specific on-the-job skills in the future.⁴¹

“Overall, social skills—such as persuasion, emotional intelligence and teaching others—will be in higher demand across industries than narrow technical skills, such as programming or equipment operation and control. Content skills (which include ICT [Information and Communication Technologies] literacy and active learning), cognitive abilities (such as creativity and mathematical reasoning) and process skills (such as active listening and critical thinking) will be a growing part of the core skills requirements for many industries.”

- World Economic Forum, [The Future of Jobs](#)

As Jobs for the Future’s Nancy Hoffman and GLN Convening panelist and Harvard Professor Bob Schwartz wrote in their recent book, [Learning for Careers](#),

“Current research suggests that in the next several decades, two kinds of skills will be the best predictors of workforce success: technical skills and mainstream social skills... a subset or result of having social capital. According to numerous researchers, social skills have an increasing premium in the labor market. The change is not just from manual work to ‘thinking for a living,’ but to a labor market that increasingly rewards the skills that robots cannot easily replace because they entail understanding and managing human interaction.”⁴²

At the GLN Convening, Burning Glass Technologies’ Steve Lynch, further noted the complexity of hiring and training for cross-sector competencies:

“To put it simply, employers today are looking for someone that has skills for multiple different job domains, from areas that used to train separately. What may have been three or four separate hires in the past, an employer wants in a single person. That’s a challenge for education, but it’s also a great opportunity,” said Lynch. Watch his full presentation [here](#).

A study from Canada emphasized the importance of “human skills” like active listening, critical thinking, and social perceptiveness to ensure career opportunities as automation advances. "To help Canada's next generation do the disrupting instead of being disrupted, we need to start with 21st-century skills.... we need to stop telling them that work revolves only around degrees, qualifications and jobs." - *Huffington Post, Canadian Press, 2018*

With such an urgent need for focus on cross-sector competencies however, we must be careful of the pendulum swinging in the other direction - away from deep, necessary content knowledge. At the GLN Convening, David Steiner, Director of the Johns Hopkins Institute for Education Policy, cautioned against an “either-or approach” and against a shift away from core academics in favor of a focus only on competencies ([watch the video here](#)):

“In the end, the folks who earn the big bucks are knowledgeable and skillful about something. You don’t just walk into a software design job at Apple. You are very, very good at doing something. You don’t become a senior surgeon at Johns Hopkins by being good at cutting. You actually know an enormous amount about where to cut. And you learned that somewhere. And your critical thinking is deeply embedded in that skill set that is incredibly specific and took years to develop.”

The [Aspen Institute Education and Society Program](#) likewise argues for an integrated approach:

“Treating these issues discretely or sequentially simply won’t work—schools and classrooms need an integrated approach to students’ social, emotional, and academic development (SEAD). In addition to improving academic outcomes, attending to social and emotional dimensions of student development is essential to genuine college and career readiness. Employers are emphatic that “people skills” (e.g., working on teams, communicating with diverse groups) are in demand and college persistence data bears out that students need more than only academic skills to navigate opportunities and challenges beyond school.”⁴³

“It's not just about what you do, it's what you can do with this. Can you critically reason with information? Can you communicate in a context with divergent thinking? Can you take perspectives? Can you put yourself into somebody else's shoes and so on?”
- *Andreas Schleicher, Global Learning Network 2017 Convening*

While a robust, community vision of a career-ready high school graduate needs to include all three areas—academic, career-specific technical, and cross-sector competencies—our focus here is on understanding and defining the competencies that help prepare young people for meaningful employability across a broad range of industry sectors,

participation in postsecondary education, and civic and life success. After all, many of the skills defined by employers (e.g., communication, collaboration) are also keys to completing industry certifications and higher education degrees and to enabling individuals to meaningfully contribute as employees and citizens.^v



Students at the [STEM School Chattanooga](#), a Global Learning Network World-Leading Learner, collaborate on an urban design project for one of the school's industry partners.

“If we are all, across the world, very intentional about teaching these skills: how to communicate well, how to collaborate, how to respond or act in various social situations, what would that mean for our society? What does that mean for countries as they interact with one another and how will that be very different from what we've done in previous generations?”

- Tiffany Huitt, Executive Director of Woodrow Wilson/Townview Feeder Pattern Dallas ISD, at the GLN 2017 Convening

Profiles of a Career-Ready Graduate

While each school or district will want to collect and reflect on input from a variety of stakeholders—students, parents, community members, educators, business and civic leaders, employers—and data sources in identifying the knowledge, skills, and dispositions that most reflect its values and vision of a career-ready graduate, it need not start from scratch. It is important to learn from those who have previously undertaken such work.

^vIt is worth noting that while there are baseline or foundational skills that apply across sectors, they are not necessarily valued equally in each sector or related career. “For example,” as Burning Glass Technologies [reports](#) from their studies of employer demands, “Relationship Building is the third-most requested baseline skill in external-facing Sales and Marketing jobs, but falls to 19th overall in Design and Media roles, behind even more STEM-intensive fields” (2015:8). Similarly, while they find no customer service skills gap “in several fields where this could be critical, such as Personal Care and Healthcare.... the gaps are significant in occupations like Finance; Information Technology; and Clerical and Administrative” (2015: 10). Other skills, like Communication, Writing, and Organizational skills are “commonly requested across nearly all jobs families and skill levels” (2015:10).

“...it's the other aspects that we wanted to continue highlighting including life learning and citizenship, innovative thinking and action, and then finally transformative leadership. It goes almost in a Z pattern, where we really want to start the foundation around personal academics and develop the character traits that lead to creating those leaders of tomorrow to go out and create the change that they want to see.”

- *Matthew Dodge, Assistant Principal and CareerConnect Pathway Director at the Denver School of Innovation and Sustainable Design, at the [Global Learning Networks 2017 Convening](#)*

National and International Examples

Countless national surveys, case studies, and interviews have already been conducted to collect feedback from business and industry on the skills they desire. For example, Harvard's Tony Wagner conducted hundreds of interviews with business, nonprofit, philanthropic, and education leaders to learn what skills students will need to build successful careers. He synthesized the responses to develop [Seven Survival Skills](#): critical thinking/problem solving; collaboration across networks/leading by network; agility/adaptability; effective oral/written communication; initiative and entrepreneurship; accessing/analyzing information; and curiosity and imagination. The [Jobs for the Future-Harvard Pathways to Prosperity](#) project summarizes input from a variety of other nationally collected employer and student surveys and [Burning Glass Technologies](#) reports on how various industries rank specific skills.

The U.S. Department of Labor's [Competency Model Clearinghouse](#) describes a general set of worker competencies across five domains: personal skills; academic competencies; workplace competencies; industry-wide technical competencies; and occupation-specific technical competencies. The US Department of Education's Office of Career, Technical, & Adult Education (OCTAE) commissioned experts from education, workforce development, and industry to create the [Employability Skills Framework](#). The skills included fit into three domains—applied knowledge, effective relationships, and workplace skills—and are used to support improvement and accountability across a variety of federal education program investments (e.g., Perkins, Special Education).

There are also a variety of other internationally and nationally developed frameworks outlining cross-sector competencies, most of which have been developed in partnership with industry. The [OECD Framework](#) international framework “aims to build a common understanding of the knowledge, skills, attitudes and values necessary to shape the future towards 2030.” Currently in its first phase, the framework puts forward a vision and actionable goals for education systems, including how to create and foster innovative learning environments. Additionally, it works to build a shared language around work and learning. Key competencies of this framework include creating new value; reconciling tensions and dilemmas; and taking responsibility. The [Partnership for 21st Century Learning](#) (P21), guided by tens of multinational corporations and business and industry organizations, developed their own set of competencies beyond core academic skills, which have been summarized as the “4 C's”—critical thinking and problem solving; communication; collaboration; and creativity and innovation.



Next Generation Learning developed the [MyWays Success Framework: Student Competencies for Learning, Work, and Life](#) to reflect “a radical shift in the meaning of readiness—from proficiency in a common set of narrow academic competencies to a broader and deeper array of competencies, adjusted and tailored to individual interests and talents.”⁴⁴

Additionally, a variety of national professional associations have chimed in, including, but not limited to competencies included in [national counseling standards](#) and in [AdvanceCTE’s framework](#). “In fact,” writes Meeder “there is an overabundance of reports, all with slightly different terminology” for defining what knowledge and skills make a student career-ready.”⁴⁵

State and Local Examples

On the locally developed side, as called for in state law and developed by stakeholders from business and industry, education, non-profit organizations, and government, Colorado has defined [Core Skills Needed for the Workforce of Educational Opportunities Beyond High School](#) across four domains: entrepreneurial, personal, civic/interpersonal, and professional. Commonly referred to as their “Essential Skills,” these skills are designed not only as a model to inform the work of schools, but also as shared goals for work-based learning and, as of 2014, for the design of [graduation capstone projects](#). Many other states have also developed either guidelines or specific standards for these cross-sector competencies. For example, West Virginia has developed explicit [Student Success Standards](#) and Tennessee has developed a [Social and Personal Competencies Resource Guide](#) and provided [online modules](#) for how to support students in developing these competencies. In Canada, British Columbia’s [Career Education Curricular Competencies](#) are designed to address four themes that run through the curriculum: self-awareness, working with others (collaboration and communication), career knowledge and awareness, and career planning.

As cited in Meeder, at the district level, [Charlotte-Mecklenburg Schools](#) established a targeted learner profile that identifies ten competencies to “develop the whole child and empower them to take ownership of their learning by providing them with multiple pathways to demonstrate mastery learning in order to be successful and productive 21st century citizens in an ever-changing world.” These are closely aligned with the MyWays and other nationally-developed frameworks.

At the school level, others have worked to develop specific school models that have explicit goals and curriculum around developing cross-sector competencies. At the GLN Convening, Rhode Island Secretary of Commerce Stefan Pryor at the GLN Convening described [P-Tech](#), an early college high school model at the Providence Career and Technical High School and elsewhere that has a defined set of cross-sector competencies. As Pryor described, high school level P-Tech students opt into intensive, core skill building in the 9th and 10th grades, and move on in the 11th and 12th grades to a more technical skill-focused curriculum with creative problem solving and practicum-like environment, emphasizing applied, hands-on learning. “What can we do in building a K-12 system and beyond through the college that enables this kind of continuity of technical skill-building while promoting creative thinking and the other kind of problem solving necessary for the future?” [asked Pryor at the GLN Convening](#).

Social and Emotional Learning and Character Education

Many other schools and districts have also taken up some of the work of identifying and defining cross-sector competencies in the context of their work to improve students’ character or social and emotional learning (SEL) and several states have adopted standards in this area. [CASEL’s integrated SEL Framework](#) focuses on five core competencies - self-awareness, self-management, social awareness, relationship skills, and responsible decision-making - that overlap considerably with lists of cross-sector competencies, and in many cases, are more clearly specified, particularly across developmental levels (e.g., grade-specific standards).

While aspects of character, such as integrity, judgement, and perseverance, are embedded in several of the previously mentioned competency frameworks, many schools and districts are focusing more explicitly on these under the frames of character education or virtue ethics. The concept of character and character education is not a new one as the Greek philosophers, particularly Aristotle, have written extensively on this topic. As the [Jubilee Centre for Character and Virtues in England notes](#), “character education teaches the acquisition and strengthening of virtues: the traits that sustain a well-rounded life and a thriving society.”⁴⁶ This framework organizes expectations across intellectual (e.g. judgement, reason), moral (e.g. honesty, integrity), civic (e.g. citizenship, service), and performance (e.g. perseverance, teamwork) virtues to develop as flourishing citizens in a thriving society. [Character Counts](#) offers a similar framework, built around six pillars: respect, responsibility, citizenship, caring, trustworthiness, and fairness.

Related to the SEL and character perspectives is the idea of mindsets and concepts like grit and agency. Indeed, many practitioners use the terms “mindsets” and “habits of mind” to name their expectations for career-ready graduates. In her psychological research, Carol Dweck finds that “the view you adopt for yourself profoundly affects the way you lead your life” and that these mindsets both vary across individuals—between a fixed mindset and growth mindset, develop from an early age, and can change and be changed. In the fixed mindset, one believes that his/her personal qualities (e.g., intelligence, personality, moral character) “are carved in stone” and therefore demand focus on continuously trying to prove oneself and have these traits confirmed in classrooms, careers, and relationships. In the growth mindset, one is less focused on trying to hide deficiencies and more focused on “the belief that your basic qualities are things you can cultivate through your efforts...everyone can change and grow through application and experience.”⁴⁷ In addition to being more oriented toward learning, those with growth mindsets, Dweck finds, are also more likely to accurately assess their own abilities than those with fixed mindsets, who tend to have more distorted views of their traits and abilities. “The fixed mindset,” she summarizes, “makes you concerned with how you’ll be judged; the growth mindset makes you concerned with improving.”⁴⁸ The latter is more associated with the continuous improvement stance so broadly espoused by business and industry and identified in many competency frameworks’ descriptions of critical thinking, problem-solving, innovation, and adaptability.

Grit is another, increasingly talked about personal or character attribute. Identified by Angela Duckworth as a combination of perseverance and passion for long-term goals, grit leads some individuals to persist and thrive more than others, even beyond their prior abilities—whether at a Chicago high school, community college, West Point, or a career in sales.^{vi} Some critics of Duckworth suggest this perspective puts too much pressure on the individual, focusing on resiliency – survival regardless of the societal and institutional obstacles (see [Noguera and Kundo, 2014](#)). Duckworth has now started a nonprofit, [Character Lab](#), to share evidence-based resources for teachers to develop character in middle and high school students. The Character Lab’s framework of character includes more than grit; it addresses a range of intrapersonal strengths (e.g., grit and self-control), as well as interpersonal (e.g. gratitude) and intellectual strengths (e.g., curiosity).

Others argue for greater focus on personal agency as a key trait for career and life success. Agency, the ability to “demonstrate advocacy skills and ability to assert self, when necessary,” is explicitly called out in the [American School Counseling Association K-12 standards](#). Mark Murphy, former Delaware State Secretary of Education and founder of America Achieves’ [Griptape initiative](#), likewise considers agency an essential 21st century competency. He believes that the more we position young people to be “the true drivers of their learning and development” the more able they will be “to seize great opportunities to grow, lead, and serve.”

Multilingualism

Another important competency area, especially in a global economy, that is often overlooked in the dominant frameworks, is multilingualism. This competency obviously overlaps with academic preparation in many school curricula. Heidi Hayes Jacobs, in her recommendations for 21st century curricula argues that, “to function successfully in the future workforce of a global economy, in the political realm of negotiation, where nuance in language is critical, in the virtual classroom, and amid the flux of immigrant movement worldwide, knowledge of world languages is critical.”⁴⁹ Zhao, among many others, likewise argues that proficiency in another language is essential to cross-cultural and global competency, as increasingly required for career success and global citizenship.⁵⁰ (Note that each of these describe high levels of second language proficiency, beyond the basic communication expectations that are more commonplace in U.S. education.)

In addition to the obvious advantages of speaking another language, Gándara summarizes a variety of research to assert that many multilinguals, especially immigrants and children of immigrants, “have complex, multinational perspectives on history, culture, and politics,” and demonstrate “a greater ability to invoke multiple perspectives in problem solving” and “less distractibility and greater ability to focus attention on a task,” among other cognitive advantages. She further cites Valdés’ (2003) work suggesting that young immigrant children who serve as interpreters for family members show a “special kind of giftedness in moving back and forth across languages and cultures.”⁵¹ The OECD states that “the experience of learning another language and culture could be satisfying for individuals and research suggests that certain academic skills may be improved by learning to speak other languages.”⁵² IT companies at America Achieves events have even noted that they look for graduates with foreign language experience because those foreign language skills transfer to being able to learn “coding language” and also being able to explain the process behind coding to a client.

^{vi} In fact, in her studies of employees in customer sales, Duckworth found that “no other commonly measured personality trait trait—including extraversion, emotional stability, and conscientiousness—was as effective as grit in predicting job retention” (Duckworth, A., [Grit: The Power and Passion of Perseverance](#), 2016 (11))

Other Sample Frameworks and Models for Cross-Sector Competencies

The OECD PISA Global Competence Framework

“Reinforcing global competence is vital for individuals to thrive in a rapidly changing world and for societies to progress without leaving anyone behind,” reads the forward of this framework. Created by countries participating in PISA and the OECD, the framework explores and defines global competence and provides resources on how global competence can be assessed.

The four dimensions of global competence are: *Knowledge; Skills; Attitude; Values*

Singapore Ministry of Education’s 21st Century Competencies

Singapore’s Ministry of Education identified critical competencies for 21st century learning and work and created a framework to support a holistic education experience. The framework centers on core values, then expands to Social and Emotional Competencies, and then to the emerging cross-sector competencies.

Key competencies include: *Civic Literacy, Global Awareness and Cross-Cultural Skills; Critical and Inventive Thinking; Communication, Collaboration and Information Skills*

Essential Skills and Dispositions from the Center for Innovation in Education and the Educational Policy

Improvement Center

The core competencies presented are collaboration, communication, creativity, and self-direction in learning. This framework offers developmental progressions with each skill’s components and levels of expertise. Include in this resource are suggestions on what the competencies may look like in different disciplines, ways to provide optimal learning opportunities, and systemic levers to support the essential skills development.

Key competencies include: *Collaboration; Communication; Creativity; Self-direction*

NCT3 Framework

This framework, which builds off the OCTAE standards with greater emphasis on career and postsecondary navigation skills, as well as civic engagement and financial literacy, is intended to support the development and implementation of pathways programs that connect learning to work and real-world experiences. Research-backed and customizable for regional needs, the framework outlines the development process.

Key competencies include: *a mix of applied knowledge, technical skills, employability skills, and other competencies that prepare individuals for success in postsecondary education, the skilled workplace, and personal life.*

Examples from Educator Network Schools

Many of the Global Learning Network’s World-Leading Learner schools are working to develop a shared vision of cross-sector competencies. Below are a few examples:

STEM School Highlands Ranch (CO)

- STEM School Highlands Ranch has gone so far as to define cross-sector competencies at each grade level, K-12. By using a matrix approach to curriculum and lesson planning that ensures articulation across grades and coordination across disciplines within grades, the school leaders help ensure that these skills are built into the entire curriculum and that all staff share responsibility for student progress toward the targeted knowledge,

skills, and dispositions. While the process of using this approach has taken many iterations, the school sees it as necessary to meet their goal of “not only preparing students to thrive in the constant world of reinvention, but to lead it.”

- Learn more [on their website](#) and in their [Global Learning Network school profile](#).

Denver School of Innovation and Sustainable Design - DSISD (CO)

- DSISD is a competency-based education, public high school that provides students with the skills and knowledge they need to succeed in college and careers and play meaningful roles as citizens of the 21st century. The school’s target competencies include explicit and transferable learning objectives that focus on empowering students. DSISD’s school design process began with a school-wide commitment to four Qualities of an Innovator: Personal Academic Excellence, Lifelong Learning and Citizenship, Innovative Thinking and Action, and Transformative Leadership. From these domains, the school community developed more detailed, aligned, cross-sector competencies that they use to focus all teaching and learning decisions and monitor school progress.
- Learn more [on their website](#) and in their [Global Learning Network school profile](#).

STEM School Chattanooga (TN)

- The Tennessee high school’s mission is to develop and share a new paradigm for world-class education using technology as a gateway to cultivate students’ inquisitive nature, exercise innovation, think critically, and collaborate to become leaders who are self-sufficient learners. The school works with business, industry, and higher education partners to backwards plan their curriculum and integrate the competencies students will need for success. The targeted skills, often referred to as process tenets by school leaders, are agreed to by staff across the school and its partners and are practiced and measured across disciplines through project-based learning and aligned rubrics.
- Learn more [on their website](#) and in their [Global Learning Network school profile](#).

Kettle Moraine School District (WI)

- Wisconsin’s Kettle Moraine School District developed a districtwide profile of a graduate that calls on each student to become an effective communicator, collaborator, continuous learner, creative and critical thinker, engaged citizen, and self-directed and resilient individual. The profile or key college- and career-ready competencies was approved by the school board, drives decision-making across the district and schools, and is firmly demonstrated in the High School of Health Sciences daily. “I would say what we’re learning from our business partners is the ever-increasing importance of what we call success skills,” said Superintendent Pat Deklotz at the [GLN Convening](#).
- Learn more [on their website](#) and in their [Global Learning Network school profile](#).

No Single, Right Set of Competencies

Despite differences in models, frameworks, and nomenclature there seems to be more consonance than dissonance. As Mehta and Fine summarize:

“Successfully navigating twenty-first century adult life requires far more than basic academic knowledge and skills. On the personal front, adults need to be able to navigate among plural identities, to confront complex ethical questions, and to make informed decisions in the face of uncertainty. On the civic front, they need to be able to articulate and advocate for their perspectives, to engage in productive dialogue across ideological divides, and to decide among imperfect options. On the professional front, they need to be able to tackle open-

ended problems in critical, creative, and collaborative ways and to engage in ongoing learning that allows them to adapt to the needs of a rapidly changing job market”⁵³

The point here is that there is no single, right set of competencies or framework for all schools and communities. But rather than be overwhelmed by the options, one should take confidence in the fact that, as illustrated above, there is considerable overlap across frameworks. It is important that you focus in on the knowledge, skills, and dispositions that best align to your community’s goals for your students—your shared profile of a career-ready graduate—and use these to inform broader school improvement and partner engagement strategies. As [Wiggins and McTighe](#) remind us, we should start any curricular or programmatic redesign effort with the end in mind. Beyond our core academics and relevant, technical skills, what do we want all our students to know be able to do?⁵⁴

Guiding Questions for Developing a Shared Vision

Meeder writes that there are “essentially two approaches to developing a definition: top down or consensus building” and suggests leaders in the career readiness space use a “modified consensus building approach,” where leaders collect related definitions and resources, use one of these or draft a definition/framework based on local priorities and interests, collect feedback, and continuously make refinements based on that feedback.⁵⁵ We likewise encourage this approach when schools get real about career readiness and develop their vision of a career- and life-ready graduate and the necessary cross-sector competencies. The following guiding questions are to provide considerations for you and your school as you undertake this process.

Who are your key stakeholders and how will they be involved in the process of developing and implementing your school or district’s vision of a career- and life-ready graduate?

Defining the key stakeholders can often be a complicated process, but generally it is better to be more inclusive on the front end to ensure buy-in from multiple stakeholders. Some of the key stakeholders to include in the process are representatives from business, labor unions and professional associations, industry representatives, post-secondary representatives, local government, community organizations, and intermediary organizations. To ensure you have a firm understanding of future job requirements, make sure to engage the emerging industries in your region. Most importantly, include parents, families, and students representing the diversity of your community as it is essential that we are preparing students for the goals and pathways that are authentic and most important to them and their families. However, we also need to play a role in helping communities imagine opportunities that may be beyond their immediate, lived experience—so they know the full range of career options. Some communities may therefore use the consensus-building phase to also increase awareness and more purposefully take on cross-sector engagement—connecting parents and families to the changing world of work and new and emerging careers (e.g., industry site visits and virtual tours, opportunities to interact with diverse professionals).

As always in this type of process, you will want to ensure that you are transparent and that all your stakeholders have clear expectations for the process that you are using and how their feedback and input will be used. (Note, several organizations have created customizable tools and resources to help launch such community conversations. For example, MyWays offers [a sample presentation](#) for rethinking teaching and learning aligned to career readiness goals.)

What existing state and local standards and/or requirements are schools, staffs, and students already accountable for? How can cross-sector competencies be interwoven with academic and technical skills?

Once you have initially brought your portrait of a career-ready graduate into focus, consider where some of these cross-sector competencies might already be described and supported—even if not yet fully developed. For example, most states' English Language Arts (ELA) standards include a variety of expectations for communication, while many social studies standards address civics, including personal and community responsibility. Math, social studies, science and ELA all call for collaboration.

While most think of Career and Technical Education programs in terms of the industry-specific pathways they offer and aligned technical skills they develop, you should be reminded that such programs are already held to a set of [federally-defined expectations](#) (referred to earlier) that include a fuller range of knowledge, skills, and dispositions. Several states' CTE standards also include these broader, in-demand skills. Your state's counseling framework likely also identifies key competencies that, until now, many under-staffed counseling departments were expected to achieve alone.

Special education teachers also promise considerable expertise to leverage in support of career readiness. Most have been working with some of our most developmentally-challenged students on developing many of the same cross-sector skills in the context of formal transition planning. They likely also have experience assessing executive functioning skills^{vii} that are often referred to as planning, prioritization, and resource management skills—and are increasingly linked to academic achievement. Likewise, early childhood education programs, notably Head Start, have standards, measures, and accountability for early learning of some of the key relational and self-management skills. And, as suggested earlier, many SEL standards overlap considerably with cross-sector competencies.

We must remember that these cross-sector competencies should not be taught in isolation but must be interwoven with academic and technical skills. (See the [Aspen Institute's recommendations](#) for ensuring meaningful integration and equity in this space.) How deliberate is your school in developing these skills across grades, content areas, and learning experiences?

How can you ensure against different sets of expectations for different students?

Career and Technical Education, School Counseling, Special Education, and English as a Second Language programs all have their own program requirements and expectations for students to transition into either the broader school or community context. If we are truly to engage the full community in ensuring that all students—regardless of race/ethnicity, native language, disability, socio-economic status, or academic performance level—are held to common expectations, we will need both a common language that will translate and integrate these program requirements with the broader school's definition of cross-sector competencies. (See the [College and Career Readiness and Success Center's resource](#) on integrating employability skills with classroom instruction to support English learners.) There will also need to be clear and consistent understanding of what the terms mean and what mastery looks like. What are the points of intersection between these and your expectations for a career-ready graduate? Have you done a crosswalk of the various competencies? How will you proactively engage and communicate expectations for all students up front?

^{vii} Executive function and self-regulation, used variously in neuroscience, special education, and early childhood education, generally refers to skills and mental processes that enable us to plan, prioritize and focus attention, remember instructions, manage resources, and juggle multiple tasks successfully. They rely on three interdependent types of brain function—working memory, mental flexibility, and self-control—and are understood to develop in most, over time, through a combination of activities (e.g., modeling, learned routines), relationships, and positive environmental conditions (Center on the Developing Child, 2012. *Executive Function* (InBrief). Retrieved from www.developingchild.harvard.edu). Recent research indicates that trauma, including that related to living in poverty, and specific learning disabilities, may impair the natural development of executive function and self-regulation skills.

To what extent do you have a developmental vision and approach to mastery of the competencies?

The first step is starting with the end in mind and painting your picture of a career-ready graduate. However, the work cannot stop here. You then need to backward map when and how these skills will be developed over time, what mastery looks like at each stage of development, who is responsible for progress at each stage, and what supports, incentives, and accountability will promise success. For example, what might collaboration look like for PreK and kindergarten students working in literacy stations and just learning how to share materials as compared to high schoolers working on a group robotics project and negotiating different roles, limited resources, and a greater level of accountability. Similarly, self-management varies across stages—from young children who are just learning classroom norms and personal responsibility for cleaning up their work areas and completing in-class assignments to middle schoolers who are responsible for their lockers, bringing the right materials to class, and completing assignments independently, over multiple days.

“It's about building these process skills over the course of time the kids are with you and not just saying ‘we're going to do this process skill collaboration and kids are just going to get it,’ but actually building it just like you would content from year to year to year.”

-Tony Donen, Principal of [STEM School Chattanooga](#), at the GLN 2017 Convening

To be successful in developing these skills, we need not only define them, but do so across the stages of development and build them over time—beginning early, intensifying in the middle grades, and becoming ever more focused in high school and postsecondary education and in the world of work.⁵⁶ As profiled above, [the STEM School Highlands Ranch \(CO\)](#), has undertaken this task by creating rubrics of each of their identified competencies across each of their grade levels (K-12). Hoffman and Schwartz argue that this kind of work should begin “at least as early as the middle grades to introduce a systematic, grade-by-grade approach to the world of careers to ensure that all students graduate high school ‘career ready,’ not just ‘college ready.’”⁵⁷ Both national SEL and counseling standards offer examples of developmentally defined expectations.

It will be worthwhile for school communities to sketch out their larger career development “curriculum”—broadly identifying knowledge and skills to be developed, related experiences, scope and sequence, and assessments at each grade level—identifying gaps and strategic opportunities along the full PreK-12 continuum (and potentially up through postsecondary education, with their local partners). Mapping across grade levels and disciplines, as [Marzano](#) describes, will ensure 1) teachers, students and parents across all grades and subject areas will have a guide for what students need to learn in order to be successful; 2) create necessary scaffolding for learning, align the focus of critical standards, and reduce redundancies in instruction; and 3) support intentional reinforcing of critical skills to prevent gaps in the necessary sequence of learning across grades levels and subject areas.⁵⁸ For examples of different approaches to mapping competencies across stages/grades, see Meeder⁵⁹, [Ohio Career Connections Framework](#), [Illinois SEL standards and performance descriptors](#), [Missouri Comprehensive Guidance and Counseling Social/Emotional Development Curriculum Index](#), and [Anchorage’s SEL standards](#).

Additionally, such efforts will allow for greater refinement in the design, completion, and progress monitoring of individualized graduation plans through middle school, high school, and beyond. Most states require and the American

School Counseling Association and the College Board’s National Office for School Counselor Advocacy (NOSCA)^{viii} recommend individual level academic planning to help students explore and assess career interests; engage in course selection and plan for high school graduation; begin career decision-making; and leverage aligned, enrichment and extracurricular learning opportunities (e.g., job shadowing, work-based learning, mentoring, career-oriented clubs and competitions, etc.). Unfortunately, rather than fully meet these goals and serve to reinforce a shared vision of a career-ready graduate, foster regular and meaningful checkpoints on student progress toward that vision, and prevent students from what the Education Trust describes as “[Meandering Toward Graduation](#),” many individualized 4- and 6-year graduation plans are revisited rarely and treated as checklists that are poorly aligned to individual student career interests or readiness needs. With greater clarity about and commitment to a shared vision of a career-ready graduate, more stakeholders might be meaningfully engaged in monitoring and supporting student progress on an ongoing basis.

Imagine what might be if the individual graduation planning process that most high schoolers experience as a once-a-year paperwork activity did more than identify which math classes a student would need in 9th grade to be ready for Advanced Placement Calculus in 12th grade and/or count credits. What if these plans made more visible the needed cross-sector competencies, helped students to become reflective about progress toward these competencies, and engaged students, families, and school staff (and potentially, community partners) in monitoring and supporting progress toward these competencies? How are the purposes of academic planning defined in your school or district? What does the academic planning template and process look like? (e.g., who is involved, what data are required, what resources and supports are engaged—including parents, community members, peer mentors, and online resources?) How might this change if you had a shared vision of a career-ready graduate, needed competencies, and developmental vision and approach to mastery of the competencies?

To what extent is multilingualism built into your competency framework and/or reinforced or undermined as a priority?

As described earlier, there is both growing demand for and valuing of multilingualism. Indeed, expectations are shifting from merely wanting young people to be able to communicate in a second language to being able to listen, speak, read, write, and transact fluently across multiple contexts in a second language.^{ix} How, if at all, is multilingualism defined in your career-ready expectations and how are these expectations reinforced in your world language curricula, instructional practices, and resources? Particularly in communities that make early investments in world language learning, are the expectations for those investments clear? K-6 program approaches tend toward two models: 1) FLEX, where instructional time is more limited and/or infrequent, mostly spent in English, and focused more on developing cultural and linguistic awareness and interest in world languages for future study and learning basic words and phrases in another language. 2) FLES, where more instructional time is regularly dedicated to developing proficiency in listening, speaking, reading, and writing. What approach are you using, and does it align to your expectations for career readiness?

What assessments, incentives, and accountability structures do you have in place to support your goals? Do you offer an [International Baccalaureate](#) (IB) diploma program and, if so, how well do your students perform? Is your state or district

^{viii}For example, NOSCA recommends that schools “Engage students in conversations about academic performance (GPA and promotion or retention) and their habits as learners (attitudes, behaviors, self-management) and how they are connected to meeting career goals,” as well as “Help each student implement a program of study that connects his or her high school experience to college and career goals and that includes strategies to transition to postsecondary settings” ([High School Counselor’s Guide](#), 2011 (5)).

^{ix}Cummins (1971, 1981) distinguishes between *basic interpersonal communicative skills* (BICS), or conversational fluency, and *cognitive academic language proficiency* (CALP). The latter represents a more robust definition of language proficiency, including the learner’s ability to “understand and express, in both oral and written modes, concepts and ideas that are relevant to success in school” and careers (Cummins J. (2008) BICS and CALP: Empirical and Theoretical Status of the Distinction. In: Hornberger N.H. (eds) *Encyclopedia of Language and Education*. Springer, Boston, MA).

among the growing number that recognizes biliteracy—not just world language course credits earned—on the high school diploma or transcript? (See a [current list](#) of states offering a biliteracy seal.) Who has access to and who earns your IB and/or biliteracy endorsements?

Equally important, if multilingualism is a priority in your career readiness framework, is it one that is accessible to all students? To what extent are world language courses scheduled such that students must choose between pursuing a CTE pathway or world language sequence? Do struggling readers, English language learners (who may not be literate or may lack academic language in the native language), and students with disabilities all have equitable access to world language learning opportunities, both in terms of scheduling and differentiated supports? And to what extent are these opportunities framed within your core commitments to career readiness or treated as “extras” and most susceptible to budget cuts, limited oversight, or low accountability for program quality?

How do selected competencies set students up for life success and help them become productive community members and citizens?

As Jamie Dimon, Chairman and CEO of JPMorgan Chase and champion for New Skills for Youth, reminds us,

“Good jobs in today’s economy require education and training beyond high school, but nearly half of young people enter the labor market without a meaningful postsecondary credential. As a result, young people find themselves stuck in low-skill, low-wage jobs. Worse yet, too many young people end up unemployed and out of school—disconnected from the economy and shut out of opportunities...”⁶⁰

Increasingly, that includes also being disconnected from civic life and their community. Indeed, our goals are not just for access to the middle class and career success, but also for full and active participation in a democratic society. Does your community both share and explicitly articulate similar goals? How, if at all, does your community define “active citizenry” and/or a commitment to character development? To what extent does a focus on citizenship not only include content knowledge, but also include deliberate efforts to foster skills and disposition that lead to active civic engagement, from voting and demonstrating personal responsibility to ethical decision-making and collaborative problem solving in a diverse society? How is success defined, beyond activities (e.g., voter registration, completion of community service hours) and inputs?

How do you define and measure success?

Schools and districts are often criticized for having reams of data, limited information, and too little knowledge. Given the focus on cross-sector competencies, to what extent do you and your community have consensus on what success will look like and the key performance indicators (KPIs) that will help you to continuously monitor *and* improve progress toward that vision? What changes are needed to develop aligned KPIs—from data collection to sorting and identifying (e.g., “tagging” students who have participated in particular programs or achieved particular targets, linking various data sets in your student information system, following students after high school graduation through participation in national data sets, or linking data with local postsecondary education institutions and/or employers)? When and how are data shared, discussed, and acted upon? Who is involved (e.g., parents and families, industry, the school board, educators) and what is the process for collecting and responding to feedback?

Next Steps

As suggested by the data highlighted early in this paper, there is an urgent need for more aggressive action to ensure our students are prepared for the changing 21st century economy and all it demands for its workers and citizens. However, to have the necessary impact, this work also needs to be more targeted. Before you join the race to add new courses, curricular resources, partnerships, or programs, it is important that schools and communities reach agreement on a profile of career-ready graduate. Take time to carefully consider what academic, career technical, and especially cross-sector competencies students need for career and life success. While this process takes time, we encourage you to invest the time and resources in an inclusive and transparent process that draws both on local resources and some of the many international, national, state, and local frameworks identified here. Once your profile of a career-ready graduate and the aligned, cross-sector competencies are determined, it will be important to build shared understanding of and commitment to these competencies, including spending time thinking about how each competency looks different at each stage of a student's growth and in different contexts.

At the beginning of this paper, we noted that a variety of initiatives—partnerships with local industries, a focus on work-based learning, collaboration with postsecondary institutions, and an emphasis on high-quality project-based learning—have shown promise in supporting deeper learning and better preparing students in cross-sector competencies. However, without clarity of purpose around a comprehensive definition of a career-ready graduate and the necessary cross-sector competencies, focus on these school improvement strategies often tends toward the mechanics of implementation. Impact is therefore diminished. Discussions and decisions about how to structure the school, what models to adopt, and how to allocate resources are best driven by a shared vision of a career and life-ready graduate.

As Vivien Stewart writes, drawing on the example of the [Asia Society's International Studies Schools Network Graduate Profile](#):

“Once created, the graduate profile becomes the compass for all school work. Curricular alignment, development of courses of study, and enrichment experiences enable students to meet the learning outcomes that the profile defines. The profile also can also provide the yardstick of achievement...”⁶¹

Have you established this compass for your school or district? What steps—beginning with reflecting on the guiding questions—will you commit to toward that end? The Educator Networks encourage you to undertake this process to ensure that all students are equipped with the cross-sector competencies to be ready for career and life success in this rapidly changing 21st century.

The Educator Networks work with innovative educators and schools to increase the number of students who have access to and complete a quality education pathway that leads to career and life success. We empower educators to be champions of change, ensuring that reforms happen with them and not to them. We help build the education-to-employment field by identifying, supporting, and sharing evidence-based models and best practices. We aim to build a shared vision of 21st century learning and work to ensure all young people have access to education and economic opportunity. [Learn more at our website](#) or get in touch [using this form](#).

Please keep us updated on your experiences and progress. As you begin this process, the Educator Networks hope to learn about, support, and share your journey. Is your school planning to, or currently working on, developing or

refining a shared vision of a career-ready graduate? What challenges have you faced, or do you anticipate? How did you build consensus around your selected competencies across stakeholders? If you are working through these questions and this process, let us know. We look forward to learning about, supporting, and sharing your work to ensure all students are prepared for career and life success!

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